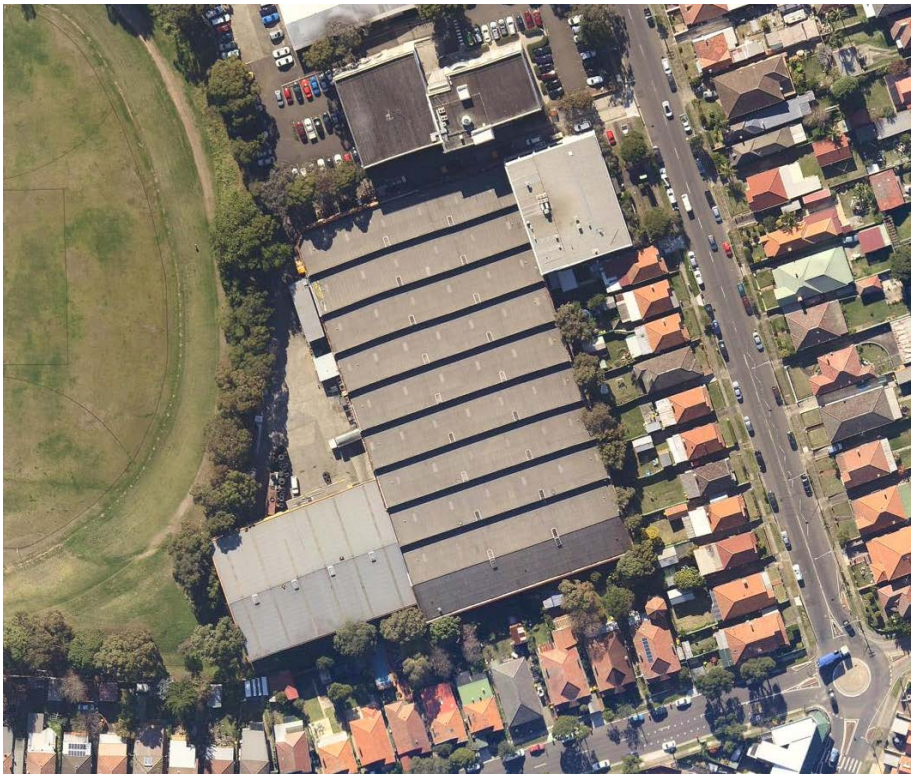
Environmental Investigations Australia
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CORONATION PROPERTY CO PTY LTD

PRELIMINARY ENVIRONMENTAL SITE ASSESSMENT REPORT
165 MILTON STREET, ASHBURY NSW



Report E22232 AA_Rev 0
15 August 2014

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165 Milton Street, Ashbury NSW

EI Report No.: E22232 AA_Rev 0
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EXECUTIVE SUMMARY

Coronation Property Co Pty Ltd engaged Environmental Investigations Australia Pty Ltd (EI) to conduct a Preliminary Environmental Site Assessment Report (PESA) for the land parcel located at 165 Milton Street, Ashbury NSW ('the site'). This environmental assessment was completed in support of a land uses rezoning application, and subsequent development application for four multi-storey residential apartments to Canterbury City Council.

The objectives of the environmental investigation were to complete an evaluation of the site in order to:

- Define the nature, extent and sources of any soil, vapour and groundwater impacts onsite;
- Target potentially-impacted areas identified in the desktop studies stage;
- Understand the influence of site specific, geologic and hydrogeological conditions on the fate and transport of any impacts that may be identified;
- Identify potential risks that identified impacts may pose to human health and the environment; and
- Provide data to assist in making decision on future investigation and remediation actions, if required.

The work conducted was consistent with NSW EPA guidelines, the results of which indicated the following:

- The soil stratigraphy on site comprised of fill materials of wide ranges of constituents, from gravel to clay, and was underlain by natural clayey materials then Ashfield Shale;
- Exceedances of Zinc concentration above adopted ecological based soil investigation level were identified at the southwest part of the site.
- Groundwater levels were found to be at depths ranging from 2.276m to 5.157m below ground level within the Ashfield Shale, generally flowing in a south-westerly direction;
- There was no presence of phase separated hydrocarbons identified during the groundwater sampling process;
- Exceedances of several heavy metals above the adopted groundwater investigation levels in samples collected at different locations were identified;
- A qualitative risk assessment identified potential sensitive receptors.

Based on the findings of the ESA, EI concludes that:

- The past and current activities on the site were considered to have impacted soil and groundwater in excess of the adopted environmental investigation levels;
- There is a potential risk to the local ecosystem, and
- Taking into account the above considerations and subject to the statement of limitations as detailed in this report, the site was considered can be made suitable for residential use, by the following:

- Further detailed investigation may be required to confirm the contamination status of the property and its suitability for residential land use.
- Conduct further intrusive investigation at the southwest portion of the site to adequately characterise the environmental conditions at this area, and to delineate the impacted profile.
- Conduct a Landfill Gas Assessment to evaluate the potential presence of gas hazards generated by adjacent landfill.
- Preparation and implementation of a Remedial Action Plan (RAP).

TABLE OF CONTENTS

1. INTRODUCTION 1
- **1.1** BACKGROUND AND PURPOSE 1
- **1.2** PROPOSED DEVELOPMENT 1
- **1.3** REGULATORY FRAMEWORK 1
- **1.4** PROJECT OBJECTIVES 2
- **1.5** SCOPE OF WORKS 2

2. SITE DESCRIPTION 4
- **2.1** PROPERTY IDENTIFICATION, LOCATION AND PHYSICAL SETTING 4
- **2.2** LOCAL LAND USE 4
- **2.3** REGIONAL SETTING 5
- **2.4** GROUNDWATER BORE RECORDS AND LOCAL GROUNDWATER USE 6
- **2.5** SITE WALKOVER INSPECTION 7

3. SITE HISTORY AND SEARCHES 9
- **3.1** SITE LAND TITLES INFORMATION / HISTORIC AERIAL REVIEW 9
- **3.2** SURROUNDING LANDS HISTORICAL AERIAL PHOTOGRAPHY REVIEW 10
- **3.3** COUNCIL INFORMATION 12
- **3.4** WORKCOVER NSW AUTHORITY SEARCH 12
- **3.5** HAZARDOUS CHEMICALS AND REGULATORY COMPLIANCE 13
- **3.6** ANECDOTAL INFORMATION 13

4. PRELIMINARY CONCEPTUAL SITE MODEL 13
- **4.1** CHEMICAL HAZARDS AND CONTAMINATION SOURCES 14
- **4.2** CHEMICAL OF CONCERN 14
- **4.3** POTENTIAL SOURCES, EXPOSURE PATHWAYS AND RECEPTORS 14
- **4.4** DATA GAPS 17

5. SAMPLING, ANALYTICAL AND QUALITY PLAN (SAQP) 18
- **5.1** DATA QUALITY OBJECTIVES (DQO) 18
- **5.2** DATA QUALITY INDICATORS 22

6. ASSESSMENT METHODOLOGY 23
- **6.1** SAMPLING RATIONALE 23
- **6.2** INVESTIGATION CONSTRAINTS 23
- **6.3** ASSESSMENT CRITERIA 24
- **6.4** SOIL INVESTIGATIONS 25
- **6.5** GROUNDWATER INVESTIGATIONS 26

7. RESULTS 29
- **7.1** SOIL INVESTIGATION RESULTS 29
- **7.2** GROUNDWATER INVESTIGATION RESULTS 31
- **7.3** LABORATORY ANALYTICAL RESULTS 33

8. DATA QUALITY ASSESSMENT 37

9. SITE CHARACTERISATION DISCUSSION 38
- **9.1** CONCEPTUAL SITE MODEL 38
- **9.2** ASBESTOS RISK 38
- **9.3** RESIDUAL PETROLEUM HYDROCARBONS 38
- **9.4** HEAVY METALS IN SOIL 38

10. CONCLUSIONS 40

11. RECOMMENDATIONS 42

12. STATEMENT OF LIMITATIONS 43

REFERENCES

ABBREVIATIONS

TABLES (In Text)

TABLE 2-1 SITE IDENTIFICATION, LOCATION AND ZONING 4
TABLE 2-2 LOCAL LAND USE 5
TABLE 2-3 TOPOGRAPHICAL, GEOLOGICAL, SOIL LANDSCAPE AND HYDROGEOLOGICAL INFORMATION 5
TABLE 2-4 SUMMARY OF REGISTERED GROUNDWATER BORES WITHIN 1 KM RADIUS OF THE SITE 6
TABLE 2-5 SUMMARY OF BUILDINGS AND INFRASTRUCTURE 7
TABLE 3-1 SUMMARY OF OWNERS AND HISTORICAL AERIAL PHOTOGRAPHY 9
TABLE 3-2 SUMMARY OF AERIAL PHOTOGRAPH REVIEW 11
TABLE 3-3 SUMMARY OF WORKCOVER RECORDS 12
TABLE 4-1 PRELIMINARY CONCEPTUAL SITE MODEL 15
TABLE 5-1 SUMMARY OF PROJECT DATA QUALITY OBJECTIVES 19
TABLE 5-2 DATA QUALITY INDICATORS 22
TABLE 6-1 ADOPTED INVESTIGATION LEVELS FOR SOIL AND GROUNDWATER 24
TABLE 6-2 SUMMARY OF SOIL INVESTIGATION METHODOLOGY 25
TABLE 6-3 SUMMARY OF GROUNDWATER INVESTIGATION METHODOLOGY 26
TABLE 7-1 GENERALISED SUBSURFACE PROFILE 29
TABLE 7-2 MONITORING WELL CONSTRUCTION DETAILS 31
TABLE 7-3 GROUNDWATER LEVELS, FIELD WATER TEST RESULTS AND OBSERVATIONS 32
TABLE 7-4 SUMMARY OF SOIL ANALYTICAL RESULTS 33

TABLES

Table T1 Soil Investigation Sample Register
Table T2 Summary of Soil Investigation Results for Heavy Metals
Table T3 Summary of Soil Investigation Results for TPH, BTEX and Naphthalene
Table T4 Summary of Soil Investigation Results for PAH
Table T5 Summary of Soil Investigation Results for Asbestos
Table T6 Summary of Soil Investigation Results for OCP, OPP & PCB
Table T7 Summary of Soil Investigation Results for VOCs
Table T8 Summary of Groundwater Investigation Results (Sampled 16 July 2014)

FIGURES

Figure 1 Locality Plan
Figure 2 Sampling Locations
Figure 3 Inferred Groundwater Flow Regime

APPENDICES

APPENDIX A PROPOSED DEVELOPMENT/VISION STATEMENT

APPENDIX B NRATLAS GROUNDWATER BORE SEARCH

APPENDIX C SELECTED SITE PHOTOGRAPHS

APPENDIX D HISTORICAL PROPERTY TITLES SEARCH

APPENDIX E NSW WORKCOVER DANGEROUS GOODS SEARCH

APPENDIX F BOREHOLE LOGS

APPENDIX G FIELD DATA SHEETS

APPENDIX H CHAIN OF CUSTODY AND SAMPLE RECEIPT FORMS

APPENDIX I LABORATORY ANALYTICAL REPORTS

APPENDIX J QA/QC ASSESSMENT

APPENDIX K LABORATORY QA/QC POLICIES AND DQOS

1. INTRODUCTION

1.1 BACKGROUND AND PURPOSE

Mr Jonathon Canavan of Coronation Property Co Pty Ltd engaged Environmental Investigations Australia Pty Ltd (EI) to conduct a Preliminary Environmental Site Assessment Report (PESA) for site characterisation purposes at 165 Milton Street, Ashbury NSW ('the site'). This assessment was conducted in support of a land uses rezoning proposal and Development Application (DA) for the site to Canterbury City Council.

As shown in Figure 1, the site is located approximately 8.6 km southwest of the Sydney central business district, situated within the Local Government Area of Canterbury City Council. The site is also identified as Lot A DP 30778, covering a total area of approximately 1.49 hectares (14, 870m2), as depicted in the site plan presented as Figure 2.

The results of a Preliminary Geotechnical Investigation (PGI) at the site, also conducted by EI, are presented separately in EI report ref. E22232 GA.

1.2 PROPOSED DEVELOPMENT

Currently the site is situated within a light industrial land use zone (Canterbury Council, 2011) and occupied by two commercial dwellings, details of which are presented in Section 2.1.The proposed development involves a rezoning to residential land uses, followed by demolition of all existing buildings, and construction of four residential apartment blocks up to possibly 15 levels high over up to five levels of basement car parking.

Based on conceptual development plans and vision statement issued by A+ Design Group on 26 February 2014 and 29 May 2014 respectively, the current proposed development is consistent with the definition of HIL B developments as in Schedule B (1) of National Environment Protection (Assessment of Site Contamination) Measure 1999 – Amendment 2013 (NEPC, 2013), which is residential with minimal opportunities for soil access. Copies of the vision statement, including the conceptual development plans are attached in Appendix A.

1.3 REGULATORY FRAMEWORK

The following regulatory framework and guidelines were considered during the preparation of this report:

- ANZECC & ARMCANZ (2000) *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, Australian and New Zealand Environment and Conservation Council / Agriculture and Resource Management Council of Australia and New Zealand, October 2000;
- DECCW (2009) Guidelines for Implementing the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2008, (UPSS Guidelines), NSW Department of Environment, Climate Change and Water (DECCW, later renamed as the Office of Environment and Heritage – OEH), May 2009;
- DEC (2007) Guidelines for the Assessment and Management of Groundwater Contamination, NSW Department of Environment and Conservation (DEC, later renamed OEH), March 2007;
- EPA (1995) Sampling Design Guidelines, NSW Environmental Protection Authority, September 1995;

- NEPC (2013) Schedule B(1) Guideline on Investigation Levels for Soil and Groundwater, National Environment Protection (Assessment of Site Contamination) Measure 1999 – Amendment 2013, National Environment Protection Council, May 2013;
- NEPC (2013) Schedule B(2) Guideline on Site Characterisation, National Environment Protection (Assessment of Site Contamination) Measure 1999 – Amendment 2013, National Environment Protection Council, May 2013;
- NSW EPA (1997) Contaminated Land Management Act; and
- OEH (2011) Guidelines for Consultants Reporting on Contaminated Sites, NSW Office of Environment and Heritage (OEH), August 2011.

1.4 PROJECT OBJECTIVES

The primary objectives of this ESA were to:

- Evaluate the potential for site contamination on the basis of historical land uses, anecdotal and documentary evidence of possible pollutant sources; and
- To investigate the degree of any potential contamination by means of limited intrusive sampling and laboratory analysis, for relevant contaminants.

1.5 SCOPE OF WORKS

In order to achieve the above objectives and in keeping the project cost-effective while generally complying with the OEH (2011) guidelines for consultants reporting on contaminated sites, the scope of works was as follows:

1.5.1 Desktop Study

- A review of relevant topographical, geological, hydrogeological and soil landscape maps for the project area;
- Search of historical aerial photographs archived at NSW Land and Property Information in order to review previous site use and the historical sequence of land development in the neighbouring area;
- A land titles search, also conducted through NSW Land and Property Information for information relating to site ownership;
- Site history survey involving a detailed search of Canterbury City Council records for information relating to operational site history and/or relevant environmental incidents;
- A search through the NSW EPA / OEH Land Information records to confirm that there are no statutory notices current on the site under the Unhealthy Building Land Act (1990) or the Contaminated Land Management Act (1997);
- A search of the Stored Chemical Information Database (SCID) and microfiche records held by WorkCover NSW relating to possible underground tank approvals and locations; and

- A review of existing underground services on site.

1.5.2 Field Work

- A detailed site walkover inspection;
- Construction of test boreholes at fourteen (14) preliminary locations distributed in a grid pattern across accessible areas of the site;
- Multiple-level soil sampling down to natural soils;
- Five (5) boreholes converted to groundwater monitoring wells for groundwater sampling purposes;
- One groundwater monitoring event involving groundwater sampling from monitoring wells;
- Laboratory analysis of selected soil samples and the groundwater samples for relevant analytical parameters, as determined from the site history survey and field observations during the investigation program; and
- Data interpretation and reporting.

1.5.3 Data Analysis and Reporting

The final task of this assessment involved the preparation of a detailed PESA report to document all investigation works, methodologies used, test bore logs and monitoring well construction logs, with discussion of all data search findings and laboratory analytical results in regards to potential risks to human health, the environment and the aesthetic enjoyment of the land.

2. SITE DESCRIPTION

2.1 PROPERTY IDENTIFICATION, LOCATION AND PHYSICAL SETTING

The site identification details and associated information are presented in Table 2-1, while the site locality is shown in Figure 1.

Table 2-1 Site Identification, Location and Zoning

Attribute	Description
Street Address	165 Milton Street, Ashbury NSW
Location Description	Approx. 8.6 km southwest of Sydney CBD, an irregular shaped block bound by residential properties then Milton Street to the north and east, residential properties then Trevenar Street to the south, and WH Waggner Oval, followed by Whitfield Avenue to the west. Northeast corner of site: GDA94-MGA55 Easting: 881083.686, Northing: 6241669.007 (Source: http://maps.six.nsw.gov.au)
Site Area	Approx. 1.49 hectares (14,870m^2, Ref. A+ Design Group Pty Ltd, 2014)
Site Owner	Coronation Property Co Pty Ltd
Lot and Deposited Plan (DP)	Lot A DP 30778
State Survey Marks	Three State Survey Marks (SSM) are situated in close proximity to the site: SS96440 on the Corner of Milton Street and Trevenar Street, SS 137848 on Trevenar Street to the south of the site and SS137173 on Trevenar Street to the South West of the site. (Source: http://maps.six.nsw.gov.au)
Local Government Authority	Canterbury City Council
Parish	Petersham Parish
County	Cumberland County
Current Zoning	IN2 – Light Industry (Ref: Canterbury Local Environmental Plan 2012)

At the time of this assessment the site was occupied by one double storey office building, one single storey warehouse with one level of basement car park.

The assessment area is illustrated in Figure 2.

2.2 LOCAL LAND USE

The site is situated within an area of mixed land uses. Current uses on surrounding land are described in Table 2-2.

Table 2-2 Local Land Use

Direction Relative to Site	Land Use Description
North	Commercial developments, including offices buildings and uncovered parking area.
East	Low density residential properties, followed by Milton Street, beyond which are low density residential properties.
South	Low density residential properties, followed by Trevenar Street.
West	Open recreational space (WH Wagener Oval), followed by Whitfield Avenue.

2.3 REGIONAL SETTING

Local ground topography, geology, soil landscape and hydrogeological information are summarised in Table 2-3.

Table 2-3 Topographical, Geological, Soil Landscape and Hydrogeological Information

Attribute	Description
Ground Topography	The regional topography is described as gently undulating rises with local relief between 10-30m. Slopes are generally <5% but occasionally up to 10%. Crests and ridges are broad (200-600m) and rounder with convex upper slopes grading into concave lower slopes and broad drainage depressions and valley flats. Rock outcrop is absent. The site is slightly undulating, with a gentle decline to the southwest, from approximate RL 40.77m AHD at the northeast corner of the site, to approximate RL 33.31 AHD at the southwest corner of the site (Ref. SDG, 2014).
Site Drainage	Consistent with the general slope of the site, stormwater is assumed to flow in a south-westerly direction and collected by on site drainage, which connects to a municipal stormwater drainage system.
Regional Geology	With reference to the 1:100 000 scale Geological Series Sheet 9130 (Sydney) the site is likely to be underlain by Ashfield Shale of the Wianamatta Group, which typically comprises black to dark grey shale and laminite. Ashfield Shale generally weathers into silty clay of medium to high plasticity. (Ref. 1:100 000 Geological Series Sheet 9130 – Sydney, NSW DMR).
Soil Landscapes	The Soil Conservation Service of NSW Soil Landscapes of the Sydney 1:100,000 Sheet (Chapman and Murphy, 1989) indicates that the site overlies the Blacktown (bt) Residual Landscape. Soils are generally shallow to moderately deep (< 1 m) red and brown podzolic soils on upper slopes.
Acid Sulfate Soil Risk	With reference to the Prospect Parramatta Acid Sulfate Soil Risk Map (1:25,000 scale; Murphy, 1997), the subject land lies within the map class description of *No Known Occurrence*. In such cases, acid sulfate soils (ASS) are not known or expected to occur and "land management activities are not likely to be affected by ASS materials". The Canterbury City Council Local Environmental Plan 2012- Acid Sulfate Soils Risk Class 1:10,000 scale Map does not indicate the Acid Sulfate Soil Risk Class of the site. Taking into account the above information, the need for further Acid Sulfate Soil management was considered unwarranted and the risks associated with Acid Sulfate Soils were considered negligible.
Depth to Groundwater	Groundwater was found to be at between 2.276m to 5.157m below top of well casing during the groundwater investigation. Onsite groundwater conditions, including groundwater flow direction, are discussed in Section 7.2.

Attribute	Description
Aquifer Types / Estimated Thickness	The groundwater includes intermittent seepage zones that may be present in the fill layer (estimated to be up to 0.5m thick). The main aquifer is likely to occur in fractured shale, the top of which is generally between 0.6 m to 5.5 m below ground level.
Nearest Surface Water Feature	Cooks River is located approximately 1 km south of the site and forms the nearest receiving surface water body in relation to the site. This part of the river is considered to be slightly disturbed marine ecosystem.
Anticipated Groundwater Flow Direction	Groundwater is anticipated to flow in a south-westerly direction towards Cooks River.
Hydraulic Conductivity	Groundwater flow through the Ashfield Shale is documented to be influenced by the bedrock fracture system with hydraulic conductivities estimated to range between 8.6 $x10^{-9}$ and 1.7$x10^{-4}$ m/day (Domenico and Schwartz, 1990).

2.4 GROUNDWATER BORE RECORDS AND LOCAL GROUNDWATER USE

An online search of registered groundwater bores was conducted by EI on 28 July 2014 through the NSW Natural Resource Atlas database (Ref. http://www.nratlas.nsw.gov.au). There were 7 registered bores within approximately 1 km radius of the site. A summary of registered bores is presented with selected details in Table 2-4. A bore location plan and detailed information regarding the listed bores is attached in Appendix B.

Table 2-4 Summary of Registered Groundwater Bores within 1 km radius of the site

Bore No.	Date Drilled	Drilled Depth (mbgl)	SWL(mbgl)* / Salinity†	Bore Purpose
GW102402	01-01-1996	90.0	- / -	Domestic
GW105215	05-06-2003	15.0	- / -	Domestic
GW110899	02-06-2010	48.0	31 / 8160	Domestic
GW114211	14-01-2010	7.0	- / -	Monitoring Bore
GW114212	14-01-2010	8.0	- / -	Monitoring Bore
GW114213	14-01-2010	7.2	- / -	Monitoring Bore
GW114214	14-01-2010	7.5	- / -	Monitoring Bore

Notes: - = Information not available, mbgl = metres below ground level; * SWL = Standing Water Level, †Salinity units – not recorded in NRAtlas records

Three of the listed registered bores were indicated be authorised for domestic purposes, with the remaining eight bores recorded as monitoring bores. The drilled bore depths ranged between 7m and 90m bgl, with only one reported standing water level being 31m bgl.

The registered water bores are generally located upstream of the anticipated groundwater flow in relation to the site, or beyond the nearest surface water body (Cooks River). Therefore the identified registered water bores are not considered being subject to impacts from contaminants generated on the site.

2.5 SITE WALKOVER INSPECTION

Mr Earin Short (EI, Environmental Scientist) and Ms Carmen Yi (EI, Environmental Engineer) made a number of observations during a detailed walkover inspection of the site on 24 June 2014, as summarised in Table 2-5. Selected site photographs from the site walkover are presented in Appendix C.

Table 2-5 Summary of Buildings and Infrastructure

Area	Building/Area Description	USTs/ASTs	Observations
Overall site area	-	-	The site topography was slightly undulated, generally falling towards the southwest with a slope of approximately 1m vertical to 25m horizontal across the site surface; and The site encompassed two main structures, being the office and the warehouse. One basement car park was situated at the southwest portion of the warehouse. A concrete driveway starting from Milton Street ran along the north and west boundaries of the site.
Office (northeast portion of site)	Double storey concrete structure with glass window façade. Four rectangular flower beds present in front of the building, separated by a brick paved footpath. Vegetation in the area included trees, turf and bushes. Two parking spaces present near the concrete driveway.	USTs not observed.	Building appeared in good condition. Signs of vegetation distress not observed. Parking spaces were sealed with concrete hardstand, which appeared in good condition.
Warehouse (central portion of the site)	Single storey warehouse comprising two components: one being an older, saw tooth roofed brick structure, the other being a concrete panelled building appeared to be a later addition to the southwest of the old structure. Floor was sealed with concrete hardstand and tiled surface. One water storage tank and one metal shed were situated at the west of warehouse.	USTs not observed.	The older brick structure appeared in deteriorating condition. Pipes attached to the external walls of the structure had moderate paint flaking and rusting. The later added concrete structure appeared in good condition. Large quantities of tyres were stored within the warehouse on floor. Use of various machineries identified. Use and storage of puncture sealing material identified. Concrete floor appeared in good conditions. Oil and rubber staining observed at multiple locations, both on floor and walls. Potential use of fibre cement board in the main electrical switchboard. Fragments of fibre cement sheeting identified along the south boundary of the site. Access to metal shed was denied by tenant.

Area	Building/Area Description	USTs/ASTs	Observations
Basement car park (Under the concrete panelled part of the warehouse))	Area was primarily sealed by bitumen pavement.	USTs not observed.	Bitumen pavement was damaged at several locations near the northern wall of the car park. Multiple parked vehicles present.
Driveway	Driveway was sealed by concrete pavement.	Concrete pads possibly resulted from previous installation of USTs observed. Location of possible fuel bowser observed.	Hardstand in fair-deteriorating condition with multiple cracks, patches, oil and possible chemical staining. Several waste tyres, skip bins, vehicles, rusted bollards and container noted.

3. SITE HISTORY AND SEARCHES

3.1 SITE LAND TITLES INFORMATION / HISTORIC AERIAL REVIEW

A historical land titles search was conducted through Service First Registration Pty Ltd. Copies of relevant documents resulting from this search are presented in Appendix D. A summary of all the previous and current registered proprietors along with information obtained from the available historical aerial photographs, in relation to past potential land uses are presented in Table 3-1. The historical aerial photographs reviewed as part of this ESA included:

- 1930: 20 February 1930, Run 16, Map 3428 B/W – Commonwealth Australia Crown
- 1943: Sydney 1943 Imagery (source : http://maps.six.nsw.gov.au/)
- 1951: May 1951, Run 14, Map 467 – 54 B/W – Lands Photo
- 1961: Run 36E, Map 1042 B/W, ands photo, Cumberland 1961 series – Department of Lands NSW 5019
- 1970: 07 July 1970, Run 18, Map 1909, Cumberland 1970 series – Lands Photo NSW1909
- 1982: 06 August 1982, Run 23, Misc.1474 – Department of Lands NSW 3240
- 1991: 14 August 1991, Run 11– Lands Department NSW 4029
- 1999: 04 May 1999, Run 6, Map 2171, Lands and Property Information NSW 4702
- 2004: 04 October 2004, Run 6, Map 2451 – Department of Lands NSW4877

Table 3-1 Summary of Owners and Historical Aerial Photography

Period	Ownership Summary	Site description based on historical aerial photographs	Potential Land Uses
10.03.1913 (1913 to 1921)	Ashfield Brick Company Limited (Now in liquidation)	-	-
02.09.1921 (1921 to 1960)	Ashfield Brick Company Limited Now Ashfield Brick Company Pty Limited	1930: Majority of the site was vacant. A rectangular dwelling present at the northern part of the site with a chimney erected in close proximity. 1943: Site remained primarily unchanged from the last aerial photo. 1951: Site remained primarily unchanged from the last aerial photo.	1930 – 1951: Industrial
02.09.1960 (1960 to 1960)	Moran & Cato (N.S.W.) Pty Limited	-	-

Period	Ownership Summary	Site description based on historical aerial photographs	Potential Land Uses
16.12.1960 (1960 to 1970)	Moran & Cato (Australia) Pty Limited	1961: The site had been redeveloped into a large span saw tooth roof structure with a smaller flat roof property attached to its northeast portion. A driveway present along the north boundary. Southern portion of site remained vacant.	1961: Commercial
26.02.1970 (1970 to 1987)	Fosseys Properties Limited	1970: Site remained primarily unchanged from the last aerial photo, with the exception of a pitched roof shed erected at the western portion of the site. A few parked vehicles identified on driveway and vacant areas. 1982: The saw tooth roof structure had undergone large extension to the south. Rest of the site remained primarily unchanged from the last aerial photo.	1970: Commercial 1980: Commercial
09.10.1987 (1987 to 1991)	Independent Automotive Air Conditioners Pty Limited	1991: The previous pitched roof shed had been replaced by long span warehouse, which occupied majority of the western portion. Rest of the site remained primarily unchanged.	1991: Commercial.
21.01.1991 (1991 to date)	Pamlite Pty Limited	1999: Site remained primarily unchanged from the last aerial photo. 2004: Site remained primarily unchanged from the last aerial photo.	1999: Commercial.

Overall, the land parcel known as 165 Milton Street appeared had been used for industrial purpose up until the 1950s. After that, land uses on site remained primarily commercial.

3.2 SURROUNDING LANDS HISTORICAL AERIAL PHOTOGRAPHY REVIEW

As part of the Site Land Titles Information / Historic Aerial Review, an assessment of surrounding land uses using historical aerial photographs sourced from NSW Land and Property Information was carried out. A summary of the pertinent information identified at surrounding land parcels from the reviewed photographs is presented in Table 3-2.

Table 3-2 Summary of Aerial Photograph Review

Aerial Photograph	Surrounding land uses based on historical aerial photographs
1930: 20 February 1930, Run 16, Map 3428 B/W – Commonwealth Australia Crown	North: Area to the north of the site was occupied by an industrial structure with a high-rise chimney, followed by low density residential properties. West: A large pit present immediately west to the site, seemingly serving as a brick quarry for the industrial properties in its proximity. South: Area to the south of the site was occupied by multiple low density residential properties, followed by Trevenar Street. East: Area to the east of the site was occupied by multiple low density residential properties, followed by Milton Street. Another brick pit and accompanying industrial building were identified southeast to the site, approximately 300m away.
1943: Sydney 1943 Imagery	Land uses on surrounding areas appear remained unchanged from the last aerial. Signs of quarrying at the base of the pit at west were observed.
1951: May 1951, Run 14, Map 467 – 54 B/W – Lands Photo	Land uses on surrounding areas appear remained unchanged from the last aerial. The quarry pit at west had expanded further west.
1961: Run 36E, Map 1042 B/W, ands photo, Cumberland 1961 series – Department of Lands NSW 5019	Land uses on surrounding areas appear remained primarily unchanged from the last aerial. The previous industrial structure at north had been redeveloped into three smaller commercial properties. The quarry pit at west had expanded further west and north.
1970: 07 July 1970, Run 18, Map 1909, Cumberland 1970 series – Lands Photo NSW1909	Land uses on surrounding areas appear remained primarily unchanged from the last aerial, with the exception of the quarry pit at west had been filled to approximately surface level.
1982: 06 August 1982, Run 23, Misc.1474 – Department of Lands NSW 3240	Land uses on surrounding areas appear remained primarily unchanged from the last aerial, with the exception of a new commercial structure had been erected to the north of the site.
1991: 14 August 1991, Run 11– Lands Department NSW 4029	Land uses on surrounding areas appear remained primarily unchanged from the last aerial, with the exception of one more commercial structure had been erected to the north of the site.
1999: 04 May 1999, Run 6, Map 2171, Lands and Property Information NSW 4702	Land uses on surrounding areas appear remained unchanged from the last aerial.
2004: 04 October 2004, Run 6, Map 2451 – Department of Lands NSW4877	Land uses on surrounding areas appear remained unchanged from the last aerial.

The review found that surrounding land uses of the site were primarily industrial and residential from the 1930s to the 1960s, with a large pit present immediate west of the site used as a brick quarry during this period. Industrial

buildings were likely redeveloped into commercial structures, while the former brick pit was likely used for landfilling during the 1960s, prior to becoming recreational space (W H Wagener Oval) after 1970.

3.3 COUNCIL INFORMATION

A search of site history records held by Canterbury City Council in relation to the site were requested by Environmental Investigation (EI) Australia on 11 June 2014. The search was still in progress and had not produced any results at the time of report preparation. Should inspection of available Council records indicate the potential for contamination from past site activities, a formal written notification to this effect will be submitted under a separate cover.

3.4 WORKCOVER NSW AUTHORITY SEARCH

A search of WorkCover NSW Authority records relating to the site was requested on 11 June 2014 by EI, on behalf of the client. Correspondence from the Dangerous Goods Licensing Section (Appendix E), dated 17 June 2013, regarding records located in the Stored Chemical Information Database (SCID) held by WorkCover, revealed records pertaining to the premises were held in the archive, with detail described in Table 3-3.

Table 3-3 Summary of WorkCover Records

Licence Holder / Premises / Date	Type of Infrastructure	Goods Stored	Quantity	Location of storage	Current Status
Moran & Cato (N.S.W.) Pty Limited 165/171 Milton Street, Ashfield 6 November 1961	Underground Tank	Mineral Spirit	1,000 gallons	Northern driveway	Unknown
	Underground Tank	Mineral Spirit	1,000 gallons	Northern driveway.	Unknown
Fosseys Properties Limited 165 Milton Street 12 June 1970	Underground Tank	Mineral Spirit	1,000 gallons	Appears to be the same tank in previous record	Unknown
	Underground Tank	Mineral Spirit	1,000 gallons	Appears to be the same tank in previous record	Unknown
Fosseys Properties Limited 165 Milton Street 24 May 1971	Underground Tank	Mineral Spirit	1,000 gallons	Appears to be the same tank in previous record, however one tank was not reported here.	Unknown
Fosseys Properties Limited 165 Milton Street 29 June 1976	Underground Tank	Mineral Spirit	5,000 litres	Appears to be the same tank in previous record.	Unknown
	Underground Tank	Mineral Spirit	5,000 litres	Appears to be the same tank in previous record.	Unknown

The WorkCover searches revealed the presence of minimum two underground storage tanks (UST) at 165 Milton Street, Ashbury NSW 2193, most likely installed in 1961. Subsequent records in the 1970s indicated the continued use of the USTs on site, probably up until 1985. The latest record dates 14 October 1985, where Fosseys Pty Limited notified WorkCover regarding their planned withdrawal from the premise in December, 1985, indicating possible

abandon of USTs. EI received no information on the removal or destruction of the USTs, therefore it is assumed that the USTs remain on site.

3.5 ANECDOTAL INFORMATION

An area of interest in vicinity of the site was identified during the stage of desktop studies, being W H Wagener Oval, which is immediate west to the site. This area appears had been used as a quarry pit prior to the 1960s, based on information from aerials photographs and as indicated in the Vision Statement on proposed development (A+ Design Group, 2014). The quarry was subsequently filled during the 1960s.

As W H Wagener Oval is located beyond the site boundary and does not constitute part of this assessment, further studies on its history and current environmental conditions were not carried out in this PESA. However, without further evidence on the method of construction and the nature of the land filling materials available, it is considered the land fill may contain hazardous materials which could pose adverse impacts to surrounding environment once exposed. Furthermore, based on historical experience, explosive and toxic gases may be generated from chemical reactions occurring within the landfill. Should the sealing layers of the landfill be compromised, from excavation activities at adjacent land for example, these gases may be released and pose high risks to nearby human beings and properties.

In light of the above considerations, it is recommended further investigation, including a land fill gas assessment, shall be conducted on the area now known as W H Wagener Oval to verify the extent and degree of risk it may pose on the proposed development.

3.6 HAZARDOUS CHEMICALS AND REGULATORY COMPLIANCE

On 29 July 2014, an on-line search of the Contaminated Land – Record of EPA Notices was conducted, this being a database that is maintained by the NSW OEH. This search confirmed that the NSW OEH has no regulatory involvement under Section 58 of the Contaminated Land Management Act 1997 in relation to the property identified as 165 Milton Street, Ashbury. Section 58 of the CLM Act 1997 relates to the investigation, remediation and management of sites where contamination poses a significant risk of harm and includes Sections 35 and 36 of the Environmentally Hazardous Chemicals Act 1985.

In addition, a search through the NSW EPA database of contaminated site notifications under *Section 60 of the CLM Act 2008* did not identify notifications regarding contamination on the site or surrounding properties as at 29 July 2014. A list of NSW Contaminated Sites notified to EPA was maintained by EPA in response to *Amendments*, which contains sites that the notifiers consider are contaminated and warrant reporting to EPA, but may or may not be significant enough to warrant regulation by the EPA. The EPA needs to review and, if necessary, obtain more information before it can make a determination as to whether the site warrants regulation.

4. PRELIMINARY CONCEPTUAL SITE MODEL

In accordance with Schedule B2 – Guideline on Site Characterisation of the National Environmental Protection (Assessment of Site Contamination) Measure 1999 Amendment 2013 (NEPM 2013) and to aid in the assessment of data collection for the site, EI developed a preliminary conceptual site model (CSM) assessing plausible pollutant linkages between potential contamination sources, migration pathways and receptors. The CSM provides a framework for the review of the reliability and useability of the data collected and to identify data gaps in the existing site characterisation.

4.1 CHEMICAL HAZARDS AND CONTAMINATION SOURCES

On the basis of site history and search findings (as described in Section 3) EI consider potential chemical hazards and onsite contamination sources to be as follows:

- Imported fill soils of unknown origin distributed across the site;
- Impacts from previous light industrial manufacturing activities at the site;
- Painted surfaces on structures (buildings) that are currently present on the site;
- Impacts from disused underground petroleum storage system (UPSS) remained on the site;
- Impacts from adjacent land parcel which was historically a landfill containing large volume of imported materials of unknown constituents;
- Impacts from the current tyre storage and transport activities on the site; and
- Deeper, natural soils containing residual impacts, representing potential secondary sources of contamination;

4.2 CHEMICAL OF CONCERN

Based on the findings of the site contamination appraisal the chemicals of concern (COC) at the site are considered to be:

- Soil – heavy metals (HMs), total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), monocyclic aromatic hydrocarbon (MAH) compounds (benzene, toluene, ethylbenzene and xylenes (BTEX)), organochlorine and organophosphorous pesticides (OCP/ OPP), polychlorinated biphenyls (PCB) and asbestos.
- Groundwater – HMs, TPH, BTEX, PAH and volatile organic compounds (VOC), including chlorinated VOC (VOCC) such as trichloroethylene (TCE).

4.3 POTENTIAL SOURCES, EXPOSURE PATHWAYS AND RECEPTORS

Potential contamination sources, exposure pathways and receptors that were considered relevant for this assessment are summarised along with a qualitative assessment of the potential risks posed by complete exposure pathways in Table 4-1.

Table 4-1 Preliminary Conceptual Site Model

Site Area	Subsurface Profile	Potential Sources	Potential Contaminants	Media	Sensitive Receptor	Migration & Exposure Pathways	Potential Risk of Complete Exposure Pathway
Office (northeast corner of site)	Residual soil (Clays) overlying Ashfield Shale. Thickness of residual soil anticipated to be <2.5 m.	Previous industrial activities, imported uncontrolled filling materials, lead paint, general waste and use of pesticides.	Pesticides, Heavy Metals, Petroleum Hydrocarbons (including PAHs), OCPs, Asbestos, Unknown	Soils/Bedrock Groundwater Air/Soil Vapour LNAPL/DNAPL (if present)	Site Workers during demolition and construction Future site residents Future site maintenance workers Offsite receptors	Seepage into the subsurface soils, bedrock and groundwater. Dermal Contact Ingestion Inhalation	L - M (should contamination be present) L (post development)
Warehouse (central portion of the site)	Residual soil (Clays) overlying Ashfield Shale. Thickness of residual soil anticipated to be <3.5 m.	Previous industrial activities, tyre storage, asbestos used in building products, imported uncontrolled filling materials, impacts from adjacent land parcel (former brick pit & landfill), and general waste.	Pesticides, Heavy Metals, Petroleum Hydrocarbons (including PAHs), OCPs, Asbestos, Landfill Gases (methane, carbon dioxide, hydrogen sulphide)Unknown	Soils/Bedrock Groundwater Air/Soil Vapour Soil Gas LNAPL/DNAPL (if present)	Site Workers during demolition and construction Future site residents Future site basement users Future site maintenance workers Offsite receptors	Seepage into the subsurface soils, bedrock and groundwater. Dermal Contact Ingestion Inhalation Explosion and asphyxiation	M (should contamination be present) L (post development)

Site Area	Subsurface Profile	Potential Sources	Potential Contaminants	Media	Sensitive Receptor	Migration & Exposure Pathways	Potential Risk of Complete Exposure Pathway
Basement car park (Southwest corner of the site)	Residual soil (Clays) overlying Ashfield Shale.	Previous industrial activities, imported uncontrolled filling materials, impacts from adjacent land parcel (former brick pit & landfill), vehicle storage.	Pesticides, Heavy Metals, Petroleum Hydrocarbons (including PAHs), OCPs, Asbestos, Landfill Gases (methane, carbon dioxide, hydrogen sulphide)Unknown	Soils/Bedrock Groundwater Air/Soil Vapour Soil Gas LNAPL/DNAPL (if present)	Site Workers during demolition and construction Future site residents Future site basement users Future site maintenance workers Offsite receptors	Seepage into the subsurface soils, bedrock and groundwater. Dermal Contact Ingestion Inhalation Explosion and asphyxiation	M-H (should contamination be present) L (post development)
Driveway	Residual soil (Clays) overlying Ashfield shale. Thickness of residual soil anticipated to be <5 m.	Previous industrial activities, imported uncontrolled filling materials, impacts from adjacent land parcel (former brick pit & landfill), vehicle storage, and USTs and associated infrastructure,	Pesticides, Heavy Metals, Petroleum Hydrocarbons (including PAHs), OCPs, Asbestos, Landfill Gases (methane, carbon dioxide, hydrogen sulphide)Unknown	Soils/Bedrock Groundwater Air/Soil Vapour Soil Gases LNAPL/DNAPL (if present)	Site Workers during demolition and construction Future site residents Future site basement users Future site maintenance workers Offsite receptors	Seepage into the subsurface soils, bedrock and groundwater. Dermal Contact Ingestion Inhalation Explosion and asphyxiation	M-H(should contamination be present) L (post development)

Notes: L = Low Risk; M = Moderate Risk; H = High Risk

4.4 DATA GAPS

On the basis of historical and current, on-site activities, intrusive investigations were considered warranted in order to characterise potential, adverse environmental impacts resulting from:

- Previous light industrial activities on site;
- Current tyre storage on site;
- Importation of unknown sources of fill material;
- Presence of disused UPSS;
- Adjacent land parcel which had previously been used as a landfill and potential for ingress of leachate and landfill gases onto site;
- Potential presence of contamination in groundwater.

5. SAMPLING, ANALYTICAL AND QUALITY PLAN (SAQP)

The SAQP plays a crucial role in ensuring that the data collected as part of this, and ongoing environmental works carried out at the site are representative, and provide a robust basis for site assessment decisions. This SAQP includes the following:

- Data quality objectives, including a summary of the objectives of the ESA;
- Investigation methodology including media to be sampled, details of analytes and parameters to be monitored and a description of intended sampling points;
- Sampling methods and procedures;
- Field screening methods;
- Analysis Methods;
- Sample handling, preservation and storage; and
- Analytical QA/QC.

5.1 DATA QUALITY OBJECTIVES (DQO)

In accordance with the USEPA (2006) *Data Quality Assessment* and the DEC (2006) *Guidelines for the NSW Site Auditor Scheme*, the process of developing Data Quality Objectives (DQO) was used by the EI assessment team to determine the appropriate level of data quality needed for the specific data requirements of the project. The DQO process that was applied for this assessment is documented in Table 5-1.

Table 5-1 Summary of Project Data Quality Objectives

DQO Steps (NSW DEC, 2006)	US EPA (2006) (modified)	Details	Comments (changes during investigation)
1. State the Problem Summarise the contamination problem that will require new environmental data, and identify the resources available to resolve the problem; develop a conceptual site model	Give a concise description of the problem Develop a conceptual model of the environmental hazard to be investigated. Identify resources available.	The site is proposed to be developed for residential apartments. Historically the site and areas in its proximity were used for industrial activities. In the 1960s the site was redeveloped and has been used as commercial warehousing in the ensuing period. The investigation sampling must evaluate the general environmental conditions on site to determine its suitability for the intended uses.	-
2. Identify the Goal of the Study (Identify the decisions) Identify the decisions that need to be made on the contamination problem and the new environmental data required to make them	Identify principal study question(s). Consider alternative outcomes or actions that may result from answering the question(s). For decision problems, develop decision statement(s), organise multiple decisions. For estimation problems, state what needs to be estimated and key assumptions.	Historical information indicated that potential contamination may have impacted the site from sources including site filling materials, USTs and industrial/commercial uses. The former landfill adjacent to the site may also be a potential source impacts to site. Intrusive investigation, involving soil and groundwater sampling, is required to verify the presence of potential contamination on site. Should contaminants be identified, the degree and extend of contamination must be reviewed to determine if further investigation and remediation are required.	-
3. Identify Information Inputs (Identify inputs to decision) Identify the information needed to support any decision and specify which inputs require new environmental measurements	Identify types and sources of information needed to resolve decisions or produce estimates. Identify the basis of information that will guide or support choices to be made in later steps of the DQO Process. Select appropriate sampling and analysis methods for generating the information.	The main inputs to the investigation works include: Dangerous goods storage notification records held by WorkCover; Historical aerial photographs and land titles information on the site; National and NSW EPA guidelines under the NSW Contaminated Land Management Act 1997.	-

DQO Steps (NSW DEC, 2006)	US EPA (2006) (modified)	Details	Comments (changes during investigation)
4. Define the Boundaries of the Study Specify the spatial and temporal aspects of the environmental media that the data must represent to support decision	Define the target land-use and receptors of interest and its relevant spatial boundaries. Define what constitutes a sampling unit. Specify temporal boundaries and other practical constraints associated with sample/data collection. Specify the smallest unit on which decisions or estimates will be made.	Lateral – the boundaries of the site; Vertical – from the existing ground level to at least the base of the proposed excavations at approximately 9 m bgl; Temporal – One round of groundwater sampling was undertaken for the purpose of initial assessment, following intrusive soil investigation.	Due to equipment and access constrains the drilling depths were limited to 8m bgl.
5. Develop the Analytic Approach (Develop a decision rule) To define the parameter of interest, specify the action level, and integrate previous DQO outputs into a single statement that describes a logical basis for choosing from alternative actions	Specify appropriate land-use parameters for making decisions or estimates. For decision problems, choose a workable Action Level and generate an "If then else" decision rule which involves it. For estimation problems, specify the methodology and the estimation procedure.	The decision rules for the investigation were: If the concentrations of contaminants in the soils data exceed the land use criteria; then assess the need to further investigate the extent of impacts onsite. Decision criteria for QA/QC measures are defined by the Data Quality Indicators (DQI) in Table 5-2.	-
6. Specify Performance or Acceptance Criteria (Specify limits on decision errors) Specify the decision-maker's acceptable limits on decision errors, which are used to establish performance goals for limiting uncertainties in the data	For decision problems, specify the decision rule as a statistical hypothesis test, examine consequences of making incorrect decisions from the test, and place acceptable limits on the likelihood of making decision errors. For estimation problems, specify acceptable limits on estimation uncertainty.	Specific limits for this project were in accordance with the appropriate guidance made by the NSW EPA, appropriate indicators of data quality and standard procedures for field sampling and handling. This should include the following points to quantify tolerable limits: A decision can be made based on a probability that 95% Upper Confidence Limits (UCL) of the data will satisfy the given site criteria. Therefore a limit on the decision error will be 5% that a conclusive statement may be incorrect. A decision can be made based on the probability that a contamination hotspot of a certain circular diameter will be detected with 95% confidence using a selected density of systematic data points. The decision error will be limited to a probability of 5% that a contamination hotspot may not be detected.	-

DQO Steps (NSW DEC, 2006)	US EPA (2006) (modified)	Details	Comments (changes during investigation)
7. Develop the Detailed Plan for Obtaining Data (Optimise the design for obtaining data) Identify the most resource-effective sampling and analysis design for general data that are expected to satisfy the DQOs	Compile all data and outputs generated in Steps 1 to 6. Use this information to identify alternative sampling designs that fit your intended use Select and document a design that will yield data to best achieve your data quality.	Boreholes will be located in a gridline fashion across the entire site to provide data for characterising the area. Minimum one borehole will be located in proximity to the approximate location of USTs. Minimum one soil samples would be collected within each identified soil strata at every borehole. One soil sample from each top soil strata will be tested for Chemicals of Concern. Other samples will be selected for testing based on their properties observed on site. Five boreholes will be converted into monitoring wells, which locations will be determined on the basis of a triangular fashion, as well as taking into account the site boundaries to assess groundwater conditions at up and down the hydraulic gradient of the site. One round of groundwater samples will be taken from these five wells. Written instructions will be issued to guide field personnel in the required fieldwork activities.	One monitoring well was not sampled due to the presence of insufficient groundwater in monitoring well.

5.2 DATA QUALITY INDICATORS

To ensure that the investigation data collected was of an acceptable quality, the investigation data set was assessed against the data quality indicators (DQI) outlined in Table 5-2, which related to both field and laboratory-based procedures. The data quality assessment is discussed in Section 8.

Table 5-2 Data Quality Indicators

QA/QC Measures	Data Quality Indicators
Precision – A quantitative measure of the variability (or reproducibility) of data	Data precision would be assessed by reviewing the performance of blind field duplicate sample sets, through calculation of relative percentage differences (RPD). Data precision would be deemed acceptable if RPDs are found to be less than 30%. RPDs that exceed this range may be considered acceptable where: • Results are less than 10 times the limits of reporting (LOR); • Results are less than 20 times the LOR and the RPD is less than 50%; or • Heterogeneous materials or volatile compounds are encountered.
Accuracy – A quantitative measure of the closeness of reported data to the "true" value	Data accuracy would be assessed through the analysis of: • Method blanks, which are analysed for the analytes targeted in the primary samples; • Matrix spike and matrix spike duplicate sample sets; and • Laboratory control samples.
Representativeness – The confidence (expressed qualitatively) that data are representative of each medium present onsite	To ensure the data produced by the laboratory is representative of conditions encountered in the field, the laboratory would carry out the following: • Blank samples will be run in parallel with field samples to confirm there are no unacceptable instances of laboratory artefacts; • Review of relative percentage differences (RPD) values for field and laboratory duplicates to provide an indication that the samples are generally homogeneous, with no unacceptable instances of significant sample matrix heterogeneities; and • The appropriateness of collection methodologies, handling, storage and preservation techniques will be assessed to ensure/confirm there was minimal opportunity for sample interference or degradation (i.e. volatile loss during transport due to incorrect preservation / transport methods).
Completeness – A measure of the amount of useable data from a data collection activity	Analytical data sets acquired during the assessment will be evaluated as complete, upon confirmation that: • Standard operating procedures (SOPs) for sampling protocols were adhered to; and • Copies of all COC documentation are presented, reviewed and found to be properly completed. It can therefore be considered whether the proportion of "useable data" generated in the data collection activities is sufficient for the purposes of the land use assessment.
Comparability – The confidence (expressed qualitatively) that data may be considered to be equivalent for each sampling and analytical event	Given that a reported data set can comprise several data sets from separate sampling episodes, issues of comparability between data sets are reduced through adherence to SOPs and regulator-endorsed or published guidelines and standards on each data gathering activity. In addition the data will be collected by experienced samplers and NATA-accredited laboratory methodologies will be employed in all laboratory testing programs.

6. ASSESSMENT METHODOLOGY

6.1 SAMPLING RATIONALE

With reference to the preliminary CSM described in Section 4, soil and groundwater investigation works were planned in accordance with the following rationale:

- Sampling fill and natural soils from 14 test bore locations located systematically across the site using a grid-based sampling pattern in consideration of access, locations of potential on site contamination source (i.e. at the areas of the USTs), to characterise in-situ soils and assess the presence of residual soil contamination;
- Sampling groundwater during a single groundwater monitoring event (GME) at five monitoring wells located close to the up gradient and down gradient site boundaries and in proximity of the UST area, to assess for potential groundwater impacts; and
- Laboratory analysis of representative soil and groundwater samples for the identified chemicals of concern.

6.2 INVESTIGATION CONSTRAINTS

The number of test bores drilled and monitoring wells installed during the investigation phase did not achieve the planned investigation scope described in Section 5.1 due to a number of physical obstructions, which comprised:

- Limited access to certain areas of the site;
- Limited head-clearance for the mechanical drilling rig; and
- Buried impenetrable materials (buried deep slabs and rock cobbles) which caused auger refusal.

Due to head clearance restrictions (limited ceiling height) within the basement car park, intrusive investigation of BH 6, BH 7 and BH 8 was performed by hand auger method and encountered refusal at 1.5, 0.5m and 0.7m respectively, and did not reached target depths. BH10 and BH14 were also drilled using hand auger due to limited access, but were able to reach target depths, being the natural soil layer.

6.3 ASSESSMENT CRITERIA

The assessment criteria proposed for this project are outlined in Table 6-1. These were selected from available published guidelines that are endorsed by national or state regulatory authorities, with due consideration of the exposure scenario that is expected for various parts of the site, the likely exposure pathways and the identified potential receptors.

Table 6-1 Adopted Investigation Levels for Soil and Groundwater

Environmental Media	Adopted Guidelines	Rationale
Soil	NEPC (2013) Soil HILs, EILs, HSLs, ESLs & Management Limits for TPHs	Soil Health-based Investigation Levels (HILs) Soil samples to be assessed against the NEPC (2013) HIL-B thresholds for residential sites with minimal access to soils, based on information provided in Vision Statement on the site (Ref: A+ Design Group, 2014). Ecological Investigation Levels (EILs) Soil samples would also be assessed against the NEPC (2013) EILs for arsenic, copper, chromium (III), nickel, lead, zinc, DDT and naphthalene, which have been derived for protection of terrestrial ecosystems. Soil Health-based Screening Levels (HSLs) The NEPC (2013) Soil HSL-A&B thresholds for low-high density residential sites for vapour intrusion would be applied to assess for potential human health impacts from residual vapours resulting from petroleum, BTEX & naphthalene. Soils asbestos results to be assessed against the NEPC (2013) Soil HSL thresholds for "all forms of asbestos". Ecological Screening Levels (ESLs) & Management Limits for Petroleum Hydrocarbons Soil samples to be assessed against the NEPC (2013) ESLs for selected petroleum hydrocarbons & TRH fractions for protection of terrestrial ecosystems. Should the ESLs and HSLs be exceeded for petroleum hydrocarbons, soil samples from the boreholes in concern would also assessed against the NEPC (2013) *Management Limits* for the TPH fractions F1 – F4 to assess propensity for phase-separated hydrocarbons (PSH), fire and explosive hazards & adverse effects on buried infrastructure.
Groundwater	NEPM, 2013 GILs for Fresh Waters	Groundwater Investigation Levels (GILs) for Marine Water NEPC (2013) provides GILs for typical, slightly-moderately disturbed aquatic ecosystems, which are based on the ANZECC & ARMCANZ 2000 Trigger Values (TVs) for the 95% level of protection of aquatic ecosystems. The marine water criteria were considered relevant as the closest, potential surface water receptor was Cooks River, located 1 km south of the site. Maximum Contaminant Level Goals published in National Primary Drinking Water Regulation (USEPA, 2010) and Laboratory limit of reporting (as prescribed in NSW DEC, 2007) are adopted as an interim investigation level where GIL are not provided in the NEPM.

Environmental Media	Adopted Guidelines	Rationale
	NEPC (2013) Groundwater HSLs for Vapour Intrusion	Health-based Screening Levels (HSLs) The NEPC (2013) groundwater HSLs for vapour intrusion were used to assess for potential human health impacts from residual vapours resulting from petroleum, BTEX and naphthalene impacts. The *HSL A* and *HIL B* thresholds for low and medium-density residential sites were applied for groundwater sampled.

For the purposes of this contamination investigation, the adopted soil assessment criteria are referred to as the Soil Investigation Levels (SILs) and the adopted groundwater assessment criteria are referred to as the Groundwater Investigation Levels (GILs). SILs and GILs are presented alongside the analytical results in the corresponding summary tables, which are discussed in Section 7.

6.4 SOIL INVESTIGATIONS

The soil investigations conducted at the site are described in Table 6-2. Test bore locations are illustrated in Figure 2.

Table 6-2 Summary of Soil Investigation Methodology

Activity/Item	Details
Fieldwork	The site investigation was conducted from 24 June 2014 to 7 July 2014, during which 4 batches of soil samples were collected.
Drilling Method & Investigation Depth	Test bores BH1 and BH5 were drilled using a self-contained hydraulic drilling rigs with 75 mm diameter solid flight augers up to 5.6m below the ground level, then continued with diamond coring methods to advance in bedrock. The test bores terminated at depths of 11.25m and 14.60m, respectively. Test bores BH6, BH7, BH8, BH10 and BH14 were drilled using the hand auger method due to height/access restrictions within and in vicinity of the building. BH6, BH7 and BH8 were unable to reach target depths due to refusal by hard surface when conducting manual auguring. Refusal were experienced at depths ranging from 0.5m to 3.2m for these bores. Remaining bores were drilled using self-contained hydraulic drilling rigs with 75 mm diameter solid flight augers. Final bore depths for BH2, BH3 and BH4 were 8m, while others boreholes were terminated when natural materials were reached and sufficient samples were collected.
Soil Logging	Drilled soils were classified in the field with respect to lithological characteristics and evaluated on a qualitative basis for odour and visual signs of contamination. Soil classifications and descriptions were based on Unified Soil Classification System (USCS) and Australian Standard (AS) 4482.1-2005. Bore logs are presented in Appendix F.
Field Observations (including visual and olfactory signs of potential contamination)	A summary of field observations is provided, as follows: • no signs of staining or fibre sheet materials were detected in materials extracted from any of the drilled boreholes. • no odour was detected in soils extracted from drilled boreholes.
Soil Sampling	Soil samples were collected & placed into laboratory-supplied, acid-washed, solvent-rinsed glass jars using dedicated nitrile gloves.

Activity/Item	Details
Decontamination Procedures	The drilling rods were decontaminated between sampling locations with potable water until the augers were free of all residual materials.
Sample Preservation	Samples were stored in a refrigerated (ice brick-filled) chest, whilst on-site and in transit to the laboratory. All samples were generally submitted and analysed within the required holding period, as documented in laboratory reports discussed in a later section.
Management of Soil Cuttings	Soil cuttings were used as backfill for completed boreholes.
Quality Control & Laboratory Analysis	A number of soil samples were submitted for analysis of previously-identified COPC by SGS Laboratories (SGS). QA/QC testing comprised intra-laboratory duplicates ('field duplicates') tested blind by SGS and an inter-laboratory field duplicate tested blind by Envirolab Services (Envirolab). All samples were transported under strict Chain-of-Custody (COC) conditions and COC certificates and laboratory sample receipt documentation were provided to EI for confirmation purposes, as discussed in Section 8.
Soil Vapour Screening	Screening for potential VOCs in collected soil samples was conducted using a Photo-ionisation Detector (PID).

6.5 GROUNDWATER INVESTIGATIONS

The groundwater investigations conducted at the site are described in Table 6-3. Monitoring well locations are illustrated in Figure 2.

Table 6-3 Summary of Groundwater Investigation Methodology

Activity/Item	Details
Fieldwork	Groundwater monitoring wells were installed and developed during 24 June 2014 to 7 July 2014; whereas, water level gauging, well purging, field testing and groundwater sampling was conducted on 16 July 2014.
Well Construction	Test bores were converted to groundwater monitoring wells as follows: • one, 11.25 m deep, onsite, up-gradient well identified as MW1, drilled by Macquarie Drilling Pty Ltd; • one, 7.5 m deep, onsite, up-gradient well identified as MW2, drilled by Hartgeo Pty Ltd; • one, 7.5 m deep, onsite, down-gradient well identified as MW3, drilled by Hartgeo Pty Ltd; • one 7.5 m deep, onsite, up-gradient well identified as MW 4, drilled by Hartgeo Pty Ltd; and • one, 14.60 m deep, onsite, up-gradient well identified as MW 5, drilled by Macquarie Drilling Pty Ltd. Well construction details are documented in the bore logs presented in Appendix F.

Activity/Item	Details
Well Construction (continued)	Well construction was in general accordance with the standards described in Minimum Construction Requirements for Water Bores in Australia (NUDLC, 2012) and involved the following: • 50 mm, Class 18 uPVC, threaded, machine-slotted screen and casing, with slotted intervals being 3m in length. • base and top of each well was sealed with a uPVC cap; • annular, graded sand filter was used to approximately 300mm above top of screen interval; • granular bentonite was applied above annular filter to seal the screened interval; • drill cuttings, bentonite and sand were used to backfill the bore annulus to just below ground level; and • surface completion comprised a steel road box cover set in neat cement and finished flush with the concrete slab/ground surface level.
Well Development	Well development was conducted for each well following installation. This involved agitation within the full length of the water column using a dedicated, HDPE, disposable bailer, followed by removal of water and accumulated sediment, until no further reduction in suspended sediment was observed (i.e. after removal of several well volumes).
Well Survey (Elevation and location)	Well elevations at ground level were extrapolated from the spot elevations marked on the survey plan provided by the Client (Figure 2). Well elevations at ground level were extrapolated in metres relative to Australian Height Datum (m AHD).
Well Gauging & Groundwater Flow Direction	All monitoring wells were purged at the commencement of the GME on 15 July, 2013. As all wells were exhibiting relative low recharge rate as observed by EI's field engineer, each well was covered with a PVC cap and gatic cover and allowed groundwater to recharge for approximately 12 hours after purging. The SWLs were then measured and recorded, as shown in Table 7-3. Based on the reduced water levels (RWLs, i.e. SWLs corrected to AHD) calculated at each monitoring well (Table 7-3) groundwater level contours were interpreted for the site as shown in Figure 3. The direction of groundwater flow in the encountered aquifer was inferred to be in a southwest direction. This is consistent with the anticipated groundwater flow direction, as inferred on the basis of site topography.
Well Purging & Field Testing	As all wells were exhibiting relative low recharge rate, they were purged with a pump until no more groundwater could be extracted. No volatile organic odours were detected during any stage of well purging.
Groundwater sampling	After 12 hours of recharging, standing water levels were measured at all monitoring bores with a Solinst Model 122 Interface Meter. Groundwater was then sampled using low-flow/minimal drawdown sampling method with a MicroPurge kit (MP15). The MicroPurge system incorporates a low density poly-ethylene (LDPE) pump bladder, and a Teflon-lined LDPE sample delivery tube. Both the pump bladder and delivery tube were decontaminated, prior to reuse at each of the five monitoring wells. The system used for this investigation also included a MicroPurge QMP15 controller, which employed pressurised carbon dioxide gas to regulate groundwater flow. Pump pressure and pumping cycles were adjusted at each monitoring wells accordingly to regulate extraction flow rate was not causing any drawdown of water level during the bore purging process. Details of pump settings at each locations are presented in Appendix G. Field measurements for Dissolved Oxygen (DO), Electrical Conductivity (EC) and pH of the sampled water were conducted using a water quality meter (TPS 90FLMV), and recorded onto field data sheets (Appendix G). An insufficient quantity of groundwater was encountered in MW4 for sample recovery. In light of this, groundwater was not sampled and hydrogeochemical parameters were not collected.

Activity/Item	Details
Decontamination Procedure	Decontamination was not required as sampling equipment was dedicated to each individual well. The water level probe and water quality kit probes were washed in a solution of potable water and Decon 90 and then rinsed with potable water between measurements/wells.
Sample Preservation	Sample containers were supplied by the laboratory with the following preservatives: • one, 1 litre amber glass, acid-washed and solvent-rinsed bottle; • two, 40ml glass vials, pre-preserved with dilute hydrochloric acid, Teflon-sealed; and • one, 250mL, HDPE bottle, pre-preserved with dilute nitric acid (1 mL). Samples for metals analysis were field-filtered using 0.45 µm pore-size filters. All containers were filled with sample to the brim then capped and stored in ice-filled chests, until completion of the fieldwork and during sample transit to the laboratory.
Quality Control & Laboratory Analysis	All groundwater samples were submitted for analysis of previously-identified chemicals of concern by SGS Laboratories (SGS). QA/QC testing comprised intra-laboratory duplicates ('field duplicates') tested blind by SGS and an inter-laboratory field duplicate tested blind by Envirolab Services (Envirolab). All samples were transported under strict Chain-of-Custody (COC) conditions and COC certificates and laboratory sample receipt documentation were provided to EI for confirmation purposes.
Sample Transport	After sampling, refrigerated sample chests were transported to SGS Australia Pty Ltd using strict Chain-of-Custody (COC) procedures. Inter-laboratory duplicate (ILD) samples were forwarded to Envirolab Services Pty Ltd (Envirolab) for QA/QC analysis. A Sample Receipt Advice (SRA) was provided by each laboratory to document sample condition upon receipt. Copies of SRA and COC certificates are presented in Appendix H.

7. RESULTS

7.1 SOIL INVESTIGATION RESULTS

7.1.1 Site Geology and Subsurface Conditions

The general site geology encountered during the drilling of the soil investigation boreholes and installation of monitoring wells included anthropogenic filling overlying clays, and Ashfield Shale. The geological information obtained during the investigation is summarised in Table 7-1.

Table 7-1 Generalised Subsurface Profile

Layer	Description	Depth to top & bottom of layer (m bgl)*
Fill	Generally concrete hardstands and pavements overlying inferred uncontrolled and poorly compacted fill of varying nature, including Sandy GRAVEL, SAND and CLAY, fine to coarse grained sand and gravel, medium to high plasticity clay, yellow/dark brown/orange/red, no odour	0.0-2.7
Residual Soil	Sandy to Silty CLAY, medium to high plasticity, orange/brown/grey, with trace fine to medium gravel, no odour	0.3 – 2.
Bedrock	Ashfield Shale, grey, inferred distinctly weathered to extremely weathered, no odour. Starting from 7.9m to 8.7m became inferred slightly weathered to fresh.	0.6-14.6+

Notes:

Approximate depths below ground level at the time of this investigation. Depths may vary across the site. More detailed descriptions of subsurface conditions are presented in the borehole logs in Appendix F.

7.1.2 Field Observations and PID Results

Soil samples were obtained from the test bores at various depths ranging between 0.0 m to 8.0 m bgl. All examined soil samples were evaluated on a qualitative basis for odour and visual signs of contamination (e.g. hydrocarbon odours, oil staining, petrochemical filming, asbestos fragments, ash, charcoal) and the following observations were noted:

- Visual or olfactory evidence of hydrocarbon impacts were not noted at borehole locations investigated during this assessment;
- Some minor brick fragments were noted in the fill layers at test bore BH1;
- Fibrous cement sheeting, ash, charcoal or slag was not observed in examined fill soils;
- Fibre cemented sheet fragments was identified near test bore BH14. One representative sample was collected and tested for asbestos;
- Elevated VOC concentration readings were detected by a portable PID fitted with a 10.9 eV lamp during the field-screening process at multiple sampling locations. The readings ranged from 9 to 900 parts per million (ppm), however, no obvious odours were detected by EI's field investigation staff. In light of the observations

the readings were considered not to be representative of volatile concentrations in soils, and hence were not considered when selecting samples for laboratory testing. The detailed PID results are shown in Appendix F, with the calibration sheet recorded at date of investigation commencement attached in Appendix G.

7.2 GROUNDWATER INVESTIGATION RESULTS

7.2.1 Monitoring Well Construction

A total of 5 groundwater monitoring wells were installed across the site. Well construction details for the installed groundwater monitoring wells are summarised in Table 7-2.

Table 7-2 Monitoring Well Construction Details

Well ID	Drilled Depth (m bgl)	RL (GL)	RL (TOC)	Screen Interval (m bgl)	Lithology Screened
MW1	11.25	36.20	36.105	4.55-7.55	Shale/Laminite
MW2	8.0	36.44	36.303	4.5-7.5	Shale
MW3	8.0	37.40	37.202	4.5-7.5	Shale
MW4	8.0	36.04	36.04	4.5-7.5	Clay/Shale
MW5	14.60	41.00	40.91	6.0-9.0	Shale/Laminite

Notes:
m bgl = metres below ground level.
RL (GL) = Reduced Level – Surveyed elevation of ground level (SDG, 2014) in metres relative to Australian Height Datum (m AHD).
TOC = top of well casing
RL (TOC) = Surveyed elevation at TOC in m AHD.

7.2.2 Field Observations and Water Test Results

A single GME was conducted on all wells during 15 July 2014 to 16 July 2014. The groundwater recharging rates were found to be low during the purging process on 15 July 2014, therefore all wells were allowed approximately 12 hours to recharge, after which, samples were collected. At MW4 the recharged groundwater after 12 hours was of insufficient amount for sampling, and no sample or reading was taken from this monitoring well.

Furthermore, extracted groundwater were found to be of dark brown to brown colour. Moderate to high sediments were observed at MW1, MW3 and MW5, while low sediments was observed at MW2. Slight to moderate hydrocarbon odour were noted when sampling groundwater at MW1 and MW5, with mild sheen observed at the latter location.

A summary of the recorded field data is presented in Table 7-3 and copies of the completed Field Data Sheets are included in Appendix G.

Table 7-3 Groundwater Levels, Field Water Test Results and Observations

Well ID	SWL (m BTOC)	RL (TOC)	WL† (m AHD)	Approx. Purge Volume (Litres)	DO (mg/L)	Field pH	Field EC (µS/cm)	Temp (°C)	Redox (mV)	Odours / Turbidity
MW1	2.276	36.105	33.829	40	2.23	5.61	4,060	18.4	54	M. HC odour/M-H turbidity
MW2	5.157	36.303	31.146	20	395	5.33	1,956	18.5	52	H turbidity
MW3	3.375	37.202	33.629	35	4.23	5.93	4,240	17.1	75	H turbidity
MW5	3.194	40.91	37.716	36	4.34	5.77	1,360	17.6	92	L HC odour/H turbidity

Notes:
GME – Groundwater monitoring event (Date of GME – 15&16 July 2014)
SWL – Standing Water Levels as measured from TOC (top of well casing) prior to groundwater sampling.
m BTOC – metres below top of well casing
RL (TOC) – Reduced Level, elevation at TOC in metres relative to Australian Height Datum (m AHD).
† WL = Calculated groundwater level, in m AHD (calculated as RL – SWL) Note: these values were used for groundwater contouring analysis.
EC – groundwater electrical conductivity as measured onsite using portable EC meter.
µS/cm – micro Siemens per centimetre (EC units).
DO – Dissolved Oxygen in units of milligrams per litre (mg/L)
All groundwater parameters (pH, EC and DO) were tested on site.
HC – Hydrocarbon
L – Low; M - Moderate; H - High, as in the Odours/Turbidity Column.

With reference to Table 7-3, the field pH data indicated that the groundwater was slightly acidic (pH ranged from 5.33 to 5.93). Electrical Conductivity (EC) measurements were recorded in the range 1.360 to 4,240 µS/cm indicating that groundwater was brackish.

7.3 LABORATORY ANALYTICAL RESULTS

7.3.1 Soil Analytical Results

A summary of laboratory results showing test sample quantities, minimum/maximum analyte concentrations and samples found to exceed the SILs, is presented in Table 7-4. More detailed tabulations of results showing the tested concentrations for individual samples alongside the adopted soil criteria are presented in Tables T2 to T7 at the end of this report. Completed documentation used to track soil sample movements and laboratory receipt (i.e. COC and SRA forms) are copied in Appendix H and all laboratory analytical reports for tested soil samples are presented in Appendix I.

Table 7-4 Summary of Soil Analytical Results

No. of primary samples	Analyte	Min. Conc. (mg/kg)	Max. Conc. (mg/kg)	Sample locations exceeding investigation levels
Heavy Metal				
21	Arsenic	<3	16	None
21	Cadmium	<0.3	0.5	None
21	Chromium (Total)	1.4	36	None
21	Copper	0.6	30	None
21	Lead	1	140	None
21	Mercury	<0.01	0.07	None
21	Nickel	0.6	27	None
21	Zinc	3.5	170	BH4-1, BH4-3, BH7-1, BH8-1, BH8-2 exceeding adopted EILs.
TRHs, BTEX, Naphthalene & PAHs				
22	TRH C6-C10 minus BTEX (F1)	<25	<25	None
22	TRH >C10-C16 (F2)	<25	<25	None
22	TRH >C16-C34 (F3)	<90	<90	None
22	TRH >C34-C40 (F4)	<120	<120	None
22	Benzene	<0.1	<0.1	None
22	Toluene	<0.1	<0.1	None
22	Ethyl benzene	<0.1	<0.1	None
22	Total xylenes	<0.3	<0.3	None
22	Naphthalene	<0.1	<0.1	None
22	Benzo(a)pyrene	<0.1	0.3	None
22	Carcinogenic PAHs	<0.3	0.4	None
22	Total PAHs	<0.8	2.3	None

No. of primary samples	Analyte	Min. Conc. (mg/kg)	Max. Conc. (mg/kg)	Sample locations exceeding investigation levels
OCPs				
20	Aldrin & Dieldrin	<0.1 & <0.2	<0.1 & <0.2	None
20	Chlordane	<0.2	<0.2	None
20	DDT+DDD+DDE	<0.6	<0.6	None
20	Heptachlor	<0.1	<0.1	None
OPPs				
20	Total OPPs	Below PQLs	Below PQLs	None
PCBs				
20	Total PCBs	Below PQLs	Below PQLs	None
VOCs				
1	Volatile Organic Compounds	Below PQLs	Below PQLs	None
Asbestos				
17	Asbestos	No asbestos detected	No asbestos detected	None

Notes:
PQL = Laboratory Practical Quantitation Limits.

Heavy Metals

With reference to Table T2, all heavy metals concentrations were below the corresponding health based SILs for residential settings with minimal accessible soils.

The derived ecological investigation level (EIL) for the heavy metal zinc (70 mg/kg) was exceeded in the fill layers at BH4, BH 7 and BH 8, as well as in the clay layer at BH4, where zinc concentrations ranging from 110mg/kg to 170mg/kg were detected.

TPHs

As shown in Table T3, all total recoverable hydrocarbons (TRH) concentrations were below the corresponding NEPM 2013 health-based HSL A and B levels and ecological screening levels (ESL), which were the adopted SILs for TPHs.

BTEX and Naphthalene

No BTEX compound and Naphthalene concentration was detected above the quantitation limits, which were all below the corresponding SILs, as shown in Table T3.

PAHs

As summarised in Table T4, all polycyclic aromatic hydrocarbon (PAH) concentration were below the corresponding SILs.

Asbestos

As summarised in Table T5, detectable asbestos concentrations or traces of respirable fibres were not identified in tested soil, or in the collected fibre cemented sheet sample near the location of BH14.

OCPs, OPPs and PCBs

With reference to Table T6 detectable concentrations of screened OCP, OPP and PCB compounds were not identified in tested samples. All laboratory PQLs were also within the corresponding SILs.

VOCs

With reference to Table T7, no detectable concentration of any Volatile Organic Compounds was identified in tested samples.

7.3.2 Groundwater Analytical Results

Laboratory analytical results for groundwater samples are summarised in Tables T8, which also include the adopted GILs. Completed documentation used to track groundwater sample movements and laboratory receipt (COC and SRA forms) are copied in Appendix H. Copies of the laboratory analytical reports are attached in Appendix I.

Heavy Metals

With reference to Table T8, concentrations in excess of the adopted GILs were identified for groundwater sampled from monitoring bores, being MW1 for Copper, Nickel and Zinc MW2 and MW3 for Cadmium, Copper, Nickel and Zinc; and MW5 for Nickel, and Zinc.

It is considered that the identified groundwater metal concentrations are potentially the result of long-term urban development in the existing groundwater catchment area, and may not necessarily be attributable to onsite contamination sources. We infer that the detected groundwater metal levels do not pose an immediate threat to human health given that groundwater has no beneficial uses (i.e. domestic, irrigation, etc) in immediate proximity to the site, the site and surrounding areas are serviced by a reticulated water supply, and water of sub-optimal quality for groundwater extraction (low yield and brackish). Realisation of impacts to the nearest environmental receptor is also unlikely as elevated heavy metal concentrations are likely to attenuate prior to reaching the point of exposure (i.e. Cooks River). Whether these results are treated as exceedances of the GILs, or representative of urban background groundwater conditions, the identified groundwater concentrations are not considered to represent a cause for environmental concern.

TPHs and BTEX

As shown in Table T8, tested TRH and BTEX concentrations were generally below the corresponding quantitation limits with the exception of TRH F3 Faction (C16-C34) in sample MW5-1, which was found to be 870 µg/L.

Possible sources of detected TRH in groundwater include seepage of residual petroleum product from adjacent site, driveway or an unknown source. Considering the nearest down gradient receptor, Cooks River, is approximately 1km south of the site, the impact from the detected TRH is likely to be negligible due to processes of natural attenuation.

PAHs

With reference to Table T8, the PAH compound naphthalene was detected in groundwater sampled at monitoring well MW1, MW3 and MW5. The concentrations were all below the adopted Fresh Waters GIL. It should be noted

that the NEPC 1999 Fresh Waters GIL (3 µg/L) was not used, as NEPC 2013 provides a higher value of 16 µg/L as the Fresh Waters GIL for naphthalene.

Concentrations of Benzo(a)pyrene in all tested samples were found to be below laboratory detection limits.

SVOCs & VOCs

As shown in Table T8, laboratory results for the tested groundwater samples generally showed non-detectable VOCs, with the exception of Chloroform in sample MW5-1, which was found to be at 1.6 µg/L.

It is known that chloroform is a common by-product from chlorine treatment of drinking water. As activities involving the manufacture or usage of chloroform were not identified on site during the course of investigation, the most plausible source of chlorine is believed to be leakage from underground water supply network. Furthermore, without readily available assessment criteria within NEPC 2013, the Maximum Contaminant Level Goal of Chloroform provided by US Environmental Protection Agency (Ref: US EPA, 2009) is used as an interim level to assess the degree of impacts from chloroform, which is 70 µg/L. Therefore it is considered the potential impact is negligible.

8. DATA QUALITY ASSESSMENT

The assessment of data quality is defined as the scientific and statistical evaluation of environmental data to determine if these data meet the objectives of the project (Ref. USEPA 2006). Data quality assessment includes an evaluation of the compliance of the field sampling and laboratory analytical procedures and an assessment of the accuracy and precision of these data from the laboratory quality control measurements obtained.

The data quality assessment process for this assessment included a review of analytical procedures to confirm compliance with established laboratory protocols and an assessment of the accuracy and precision of analytical data from a range of quality control measurements. The QC measures generated from the field sampling and analytical program were as follows:

- suitable records of fieldwork observations including borehole logs;
- relevant and appropriate sampling plan (density, type, and location);
- use of approved and appropriate sampling methods;
- preservation and storage of samples upon collection and during transport to the laboratory;
- complete field and analytical laboratory sample COC procedures and documentation;
- sample holding times within acceptable limits;
- use of appropriate analytical procedures and NATA-accredited laboratories; and
- required LOR (to allow for comparison with adopted IL);
- frequency of conducting quality control measurements;
- laboratory blanks;
- field duplicates;
- laboratory duplicates;
- matrix spike/matrix spike duplicates (MS/MSDs);
- surrogates (or System Monitoring Compounds);
- analytical results for replicated samples, including field and laboratory duplicates and inter-laboratory duplicates, expressed as Relative Percentage Difference (RPD); and
- checking for the occurrence of apparently unusual or anomalous results, e.g. laboratory results that appear to be inconsistent with field observations or measurements.

The findings of the data quality assessment in relation to the soil and groundwater investigations at the site are discussed in detail in Appendix J. QA/QC policies and DQDs are presented in Appendix K.

On the basis of the analytical data validation procedure employed the overall quality of the soil and groundwater analytical data produced for the site were considered to be of an acceptable standard for interpretive use.

9. SITE CHARACTERISATION DISCUSSION

9.1 CONCEPTUAL SITE MODEL

On the basis of investigation findings the preliminary CSM discussed in Section 4 was considered to appropriately identify contamination sources, migration mechanisms and exposure pathways, as well as potential onsite and offsite receptors. Previously known data gaps, as outlined in Section 4.4 have largely been addressed; however, the following remaining data gaps need to be addressed in subsequent investigation works:

- To adequately characterise environmental conditions of the site (in accord with NSW EPA (1995)), and delineate the profile of zinc impacted soil at the southwest portion of the site, additional soil investigations shall be conducted after demolition of site structures;
- The potential presence of explosive and/or asphyxiation hazards generated from the adjacent landfill (now known as WH Wagener Oval) shall be addressed with a detailed landfill gas assessment (and possible risk assessment based on the findings of the investigation);
- Identification of sources of hydrocarbon odours and sheens noted in groundwater monitoring wells; and
- Environmental conditions in the vicinity of former USTs remain inconclusive; further assessment, including laboratory testing of field samples shall be performed.

9.2 ASBESTOS RISK

Asbestos was not reported in fill or deeper soil from intrusive sampling at 14 locations across the entire site. Asbestos was also not detected in the random sample collected from the fibre cemented sheeting fragments identified near BH14. Therefore, risk of encountering asbestos containing materials during ground excavation is considered to be low.

9.3 RESIDUAL PETROLEUM HYDROCARBONS

As described in Section 3, two former underground tanks containing mineral spirit were located at the northern driveway area. Assessment of the UST area involved intrusive and groundwater assessment at location BH1/MW1 in proximity of the inferred USTs area did not report significant TRH impact in soils to 3.4m bgl, as well as in groundwater. However, due to the preliminary nature of the investigation, further investigation including laboratory testing of field samples should be performed as part of supplementary investigations.

9.4 HEAVY METALS IN SOIL

Fill layers at BH4, BH7 and BH8, and underlying clay layer at BH4 were reported to be impacted with Zinc that exceeded the ecological based SIL of 70mg/kg. The concentration range reported were 110mg/kg to 170mg/kg. However it is noted that all samples exceeding the EILs were located within soil layer to be excavated as proposed in the current Vision Statement for the site.

In addition, bores BH4, BH7 and BH8 were situated at the southwest portion of the site. Due to limited access for drilling equipment at this area, hand auguring was adopted. Thorough delineation of impacted soil profiles was not

able to be achieved because of premature refusal when hand auguring. It is recommended further investigation be carried out after demolition of existing buildings and structures to investigate the extent of impacts.

10. CONCLUSIONS

The property located at 165 Milton Street, Ashbury NSW was the subject of a Preliminary Environmental Site Assessment in order to assess the potential for on-site contamination associated with the identified current and former land uses. Based on the findings of this assessment it is concluded that:

- The site comprises an irregular shaped block, covering a total area of approximately 1.49 hectares. The site is bound by residential properties then Milton Street to the north and east, residential properties then Trevenar Street to the south, and W H Wagener Oval and Whitfield Avenue to the west.
- Currently the site is situated within a light industrial zoning and occupied by a double storey office building, a single storey warehouse and a basement car park. The proposed development involves an application for rezoning to residential land uses, and subsequent development of three multi-storey residential apartments on the site.
- Surrounding land uses have been primarily residential from the 1930s, with the exception of adjacent land at north, and W H Wagener Oval at west, which were used for industrial/commercial activities and landfilling activities, respectively.
- The site was free of statutory notices issued by the NSW EPA/OEH, and was not reported in the List of NSW contaminated sites notified to EPA.
- WorkCover search revealed that there were two underground storage tanks storing mineral spirits located at the concrete driveway near the north boundary of the site; No record on tank removals was identified;
- Soil sampling and analysis were conducted at fourteen (14) test bore locations (BH1-BH14) down to a maximum depth of 14.6m below ground level. Sampling regime was considered to be appropriate for preliminary investigation purposes and comprised judgemental and systematic (grid based) sampling patterns, with allowance for structural obstacles (e.g. building walls, underground and overhanging services and other physical obstructions in use by existing operating businesses);
- The sub-surface layers comprised fill materials of a wide range of constituents, from gravel to clay, and was underlain by *in-situ* weathered clay soils derived from underlying Ashfield Shale;
- Results of soil samples collected from test bores were generally below adopted heath based and ecological based soil investigation levels, with the exception of BH4, BH7 and BH8 reported Zinc concentration exceeding adopted ecological based SIL. Delineation of these impacts was unable to be achieved at current drilled depth;
- Five of the test bores were converted to monitoring wells (BH1-BH5). Groundwater levels were found to be at depths ranging from 2.276m to 5.157m below ground level;
- Groundwater samples collected at MW1, MW2, MW3 and MW5 reported exceedance of Nickel and Zinc above the adopted groundwater investigation level. MW1, MW2, MW3 reported exceedance of Cadmium above the adopted groundwater investigation level.

- On review of the Preliminary Conceptual Site Model (CSM) developed as part of this ESA, it was concluded that the model remains valid for the proposed development. However, due to the absence of the majority of contaminants described in the CSM, the potential risk of complete exposure pathways to exist as highlighted within the CSM, is considered to be low based on existing data. We note, however, that further assessment is required to adequately characterise the site in accordance with sampling density guidelines, and to address data gaps identified during the investigation.

Therefore it is concluded that the site can be made suitable for the proposed residential purposes as outlined in the Vision Statement on 165 Milton Street (A+ Design Group, 2014), following further investigation to close data gaps identified in Section 9.1, and in accordance with a remediation action plan to address the contamination hotspots, USTs burial areas after demolitions of existing buildings, and any unknown or unexpected contamination identified during the demolition and construction process.

It should be noted that this assessment was conducted to for a HIL B type of development. Should the proposed development be altered significantly or to a more sensitive land use, including HIL A type of development as defined in NEPM 2013 (NEPC, 2013), different assessment criteria will require adoption.

11. RECOMMENDATIONS

In light of the findings of this investigation, the following is recommended:

1. Further intrusive investigation to adequately characterise the environmental condition of the site in accord with sampling density guidelines, and to also address data gaps identified in the CSM including, potential presence of explosive and/or asphyxiation hazards generated from the adjacent landfill, identification of sources of hydrocarbon odours and sheens noted in groundwater monitoring wells, and the environmental condition of soils and groundwater in the vicinity of former USTs and associated infrastructure;.

2. Following the completion of site characterisation, preparation and implementation of a Remedial Action Plan (RAP) to guide remediation and validation processes for decommissioning USTs and associated infrastructure, and areas of site contamination identified during site investigation. The RAP will also provide waste management guidance.

12. STATEMENT OF LIMITATIONS

The findings presented in this report are the result of discrete and specific sampling methodologies used in accordance with best industry practices and standards. Due to the site-specific nature of soil sampling from point locations, it is considered likely that all variations in subsurface conditions across a site cannot be fully defined, no matter how comprehensive the field investigation program.

While normal assessments of data reliability have been made, EI assumes no responsibility or liability for errors in any data obtained from previous assessments conducted on site, regulatory agencies (e.g. Council, EPA), statements from sources outside of EI, or developments resulting from situations outside the scope of works of this project.

Despite all reasonable care and diligence, the ground conditions encountered and concentrations of contaminants measured may not be representative of conditions between the locations sampled and investigated. In addition, site characteristics may change at any time in response to variations in natural conditions, chemical reactions and other events, e.g. groundwater movement and or spillages of contaminating substances. These changes may occur subsequent to EI's investigations and assessment.

EI's assessment is necessarily based upon the result of the site investigation and the restricted program of surface and subsurface sampling, screening and chemical testing which was set out in the proposal. Neither EI, nor any other reputable consultant, can provide unqualified warranties nor does EI assume any liability for site conditions not observed or accessible during the time of the investigations.

This report was prepared for the above named client and no responsibility is accepted for use of any part of this report in any other context or for any other purpose or by other third parties. This report does not purport to provide legal advice.

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Note:

ABBREVIATIONS

AHD	Australian Height Datum
ASS	Acid sulfate soils
ANZECC	Australian and New Zealand Environment Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
B(a)P	Benzo(a)Pyrene
BFD	Blind Field Duplicate (QA/QC sample, tested by the primary laboratory)
bgl	Below Ground Level
BH	Borehole
BTEX	Benzene, Toluene, Ethyl benzene, Xylene
COC	Chain of Custody
CSM	Conceptual Site Model
DEC	Department of Environment and Conservation, NSW
DECC	Department of Environment and Climate Change, NSW (formerly DEC)
DA	Development Application
DO	Dissolved Oxygen
DP	Deposited Plan
EC	Electrical Conductivity
Eh	Redox potential
EI	Environmental Investigations (trading name of Environmental Investigations Australia Pty Ltd)
EPA	Environment Protection Authority
EPA NSW	Environment Protection Authority, New South Wales
F1	TPH C6 – C10 less the sum of BTEX concentrations
F2	TPH >C10 – C16 less the concentration of naphthalene
GIL	Groundwater Investigation Level
GME	Groundwater monitoring event
HIL	Health-based Investigation Level
HSL	Health-based Screening Level
IFD	Inter-laboratory Field Duplicate (QA/QC sample, tested by the secondary laboratory)
km	Kilometres
m	Metres
mAHD	Metres relative to Australian Height Datum
mbgl	Metres below ground level
mg/m3	Milligrams per cubic metre
mg/L	Milligrams per litre
µg/L	Micrograms per litre
mV	Millivolts
MW	Monitoring well
NATA	National Association of Testing Authorities, Australia
NEPC	National Environmental Protection Council

NSW	New South Wales
OEH	Office of Environment and Heritage, NSW (formerly DEC, DECC, DECCW)
PAHs	Polycyclic Aromatic Hydrocarbons
pH	Measure of the acidity or basicity of an aqueous solution
ppbv	Parts per billion by volume
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance / Quality Control
RAP	Remediation Action Plan
SRA	Sample receipt advice (document confirming laboratory receipt of samples)
SWL	Standing Water Level
TCE	Trichloroethylene (also known as Trichloroethene)
TPHs	Total Petroleum Hydrocarbons
UCL	Upper Confidence Limit
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds (including VOCCs)
VOCCs	Volatile Organic Chlorinated Compounds

FIGURES



Environmental Investigations Australia Contamination | Remediation | Geotechnical Suite 6.01, 55 Miller Street, PYRMONT 2009 Ph (02) 9516 0722 Fax (02) 9518 5088	Drawn: C.Y. Approved: N.F. Date: 12-06-14 Approx Scale: N.T.S	**Coronation Property Co Pty Ltd** Preliminary Environmental Site Assessment 165 Milton Street, Ashbury, NSW Site Location Plan	Figure: 1 Project: E22232 AA



LEGEND

- Approximate Borehole Location
- Approximate Monitoring Well/Borehole Location
- Approximate Site Boundary
- Basement Car Park Area
- Approx. Underground Storage Tank location

Environmental Investigations Australia
Contamination | Remediation | Geotechnical
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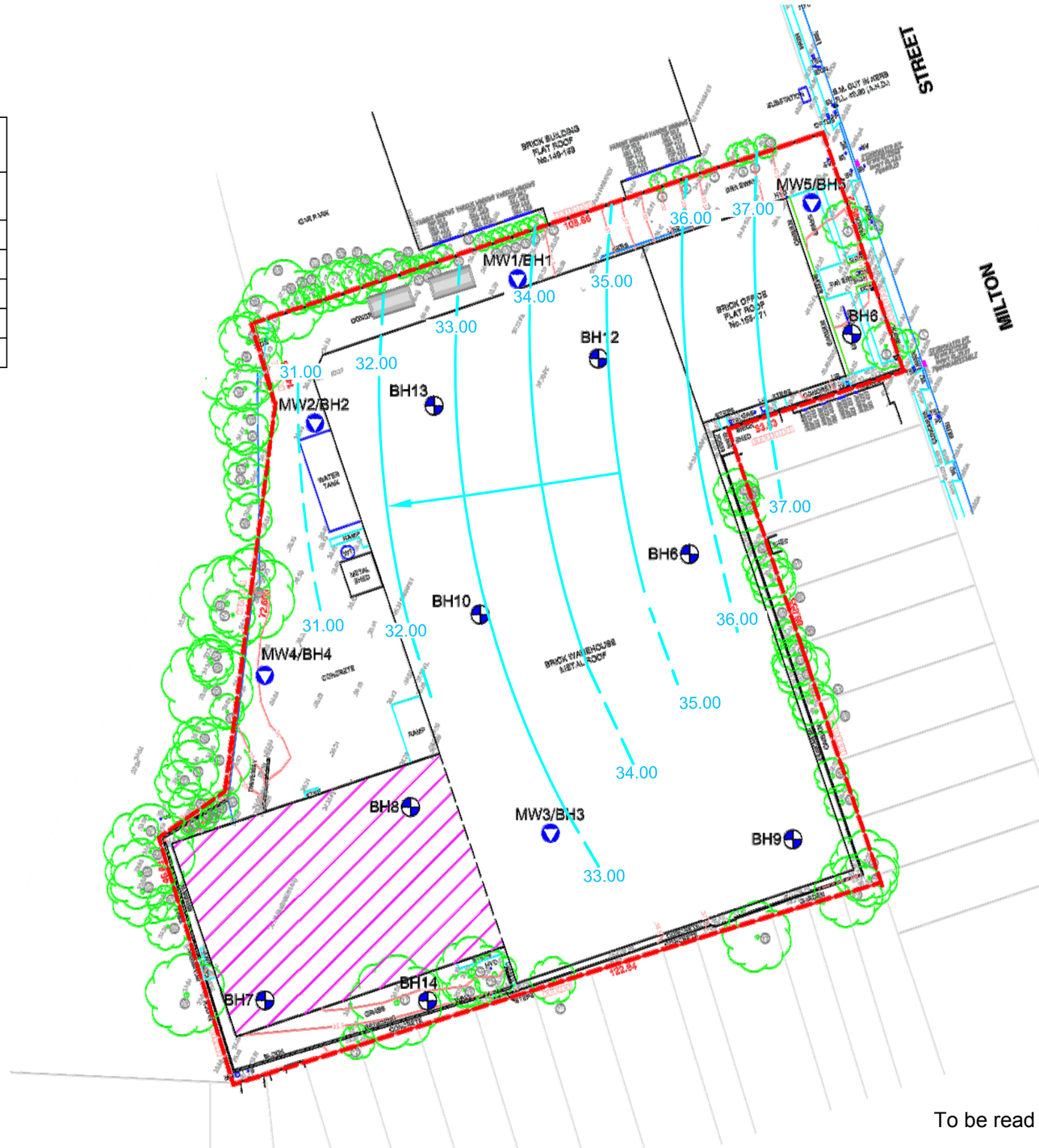
Drawn:	C.Y.
Approved:	N.F.
Date:	31-07-2014
Approx Scale:	As shown

Ashbury Developments Pty Ltd
Environmental Site Assessment
165 Milton street, Ashbury NSW
Sampling Location Plan

Figure: 2

Project: E22232 AA

Groundwater Levels at Monitoring Wells	
MW ID	Groundwater Level (mAHD)
MW1	33.8290
MW2	31.1460
MW3	33.6290
MW4	Not Measured
MW5	37.7160



0 5 10 20 30 50
Approx. Scale (m)

To be read in conjunction with Figure 2, E22232 AA
Map Source: SDG Level Survey

LEGEND

- Monitoring well location
- Borehole location
- Approx. site boundary
- Inferred groundwater flow direction
- Inferred groundwater contours (m AHD approx.)

Environmental Investigations Australia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street, PYRMONT 2009
Ph (02) 9516 0722 Fax (02) 9516 0741

Drawn:	C.Y.
Approved:	N.F.
Date:	01-08-14
Approx Scale:	As Shown

Ashbury Developments Pty Ltd
Environmental Site Assessment
165 Milton Street, Ashbury, NSW
Inferred Groundwater Contours

Figure: 3

Project: E22232 AA

TABLES

Table T1 - Soi and Groundwater Samples Register

Date Sampled	Sample ID	Sample Type	Matrix	Requested Analyses							Primary Laboratory SGS Batch No.	Secondary Laboratory Envirolab Batch No.
				Heavy Metals*	TRH	BTEX	PAH	OCP/PCB/OPP	Asbestos	VOCs		
Soil Samples												
24.06.2014	BH1-1	Primary	Soil	X	X	X	X	X	X		SE129159	-
	BH2-1			X	X	X	X	X	X			
	BH2-2											
	BH2-3											
	BH2-4											
	BH3-1			X	X	X	X	X	X			
	BH3-2			X	X	X	X	X	X			
	BH3-3											
	BH3-4											
	BH3-5											
	BH6-1			X	X	X	X	X	X			
	BH6-2											
	BH6-3											
	BH6-4											
	BH7-1			X	X	X	X	X	X			
	BH7-2											
	BH8-1			X	X	X	X	X	X			
	BH8-2			X	X	X	X	X	X			
	BH8-3											
	BH9-1			X	X	X	X	X	X			
	BH9-2											
	BH9-3											
	B1	Duplicate of BH1-1		X	X	X						
	I1			X	X	X					-	112115
	RB	Rinsatae Blank	Water	X	X	X					SE129159	-
25.06.2014	BH10-1	Primary	Soil	X	X	X	X	X	X		SE129158	-
	BH10-2			X	X	X	X	X	X			
	BH10-3											
	BH10-4											
	BH11-1			X	X	X	X	X	X			
	BH11-2											
	BH11-3											
	BH12-1			X	X	X	X	X	X			
	BH12-2											
	BH13-1			X	X	X	X	X	X			
	BH13-2			X	X	X	X	X	X			
	BH13-3											
	BH13-4											
	BH13-5											
	BH14-1											
	BH14-2											
	A1		FCS						X			
27.06.2014	BH1-2	Primary	Soil	X	X	X	X	X			SE129214	-
	BH1-3			X	X	X	X	X				
	BH1-4											
	BH1-5											
	BH1-6											
	BH1-7				X	X						
	BH5-1			X	X	X	X	X				
	BH5-2			X	X	X	X	X				
	BH5-3											
	BH5-4											
	BH5-5											

Date Sampled	Sample ID	Sample Type	Matrix	Requested Analyses							Primary Laboratory SGS Batch No.	Secondary Laboratory Envirolab Batch No.
				Heavy Metals*	TRH	BTEX	PAH	OCP/PCB/OPP	Asbestos	VOCs		
07.07.2014	BH4-1	Primary	Soil	X	X	X	X	X	X	X	SE129375	-
	BH4-2											
	BH4-3			X	X	X	X					
	BH4-4											
Groundwater Samples												-
16.07.2014	MW1-1	Primary	Water	X	X	X	X			X	SE129745	-
	MW2-1			X	X	X	X			X		
	MW3-1			X	X	X	X			X		
	MW5-1			X	X	X	X			X		
	MWB-1	Duplicate of MW1-1		X	X	X						
	MWI-1			X	X	X					-	112115

Notes:

* Samples are only tested for selected heavy metals, which are Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, and Zinc.

FCS Fibre cemented sheeting fragment

Table T2 – Summary of Soil Investigation Results for Heavy Metals

Sample ID	Arsenic (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Mercury (mg/kg)	Nickel (mg/kg)	Zinc (mg/kg)
BH1-1	4	<0.3	2.7	1.5	2	<0.01	16	7.7
BH1-2	13	<0.3	3.9	4.9	9	<0.01	1.7	7.5
BH1-3	5	<0.3	4.6	11	6	<0.01	1.0	8.2
BH2-1	7	<0.3	4.8	3.6	8	0.01	12	14
BH3-1	4	<0.3	17	7.5	16	0.02	2.0	40
BH3-2	9	<0.3	15	13	23	0.02	3.2	37
BH4-1	9	0.3	9.4	30	45	0.02	5.1	110
BH4-3	11	0.5	19	18	46	0.03	7.1	170
BH5-1	<3	<0.3	7.5	13	14	0.02	4.4	65
BH5-2	12	0.4	19	13	28	0.07	2.8	38
BH6-1	4	<0.3	4.6	5.1	8	0.03	3.0	20
BH7-1	7	0.4	24	27	140	0.07	18	160
BH8-1	11	0.4	17	21	50	0.02	8.9	130
BH8-2	13	0.5	17	24	36	0.02	10	140
BH9-1	4	<0.3	36	8.5	22	0.02	27	27
BH10-1	<3	<0.3	1.4	0.6	1	<0.01	0.6	3.5
BH10-2	16	0.3	15	19	23	0.02	1.6	30
BH11-1	9	<0.3	12	7.6	15	<0.01	7.1	15
BH12-1	5	<0.3	2.8	2.2	3	<0.01	4.9	5.2
BH13-1	10	<0.3	12	9.8	17	<0.01	1.3	32
BH13-2	9	<0.3	6.2	13	15	<0.01	0.9	13
SILs								
HIL B[1]	500[2]	150	500[3]	30000	1200[4]	120[5]	1200	60000
EILs[6]	100[7]	NR	400	60[6]	1100	NR	30[6]	70[6]

Notes:

XXX Bolded values indicates concentration exceeds EIL.

SIL Soil investigation levels.

HIL Health-based investigation levels (mg/kg) as per NEPM 1999 Schedule B1 2013 Amendment.

EIL Ecological Investigation Levels (mg/kg) as per NEPM. EILs incorporate soil physiochemical properties (pH, CEC & clay content) tested on EIL-1 to calculate ABC (ambient background concentrations).

NL 'Not Limiting' If the derived soil vapour limit exceeds the soil concentration at which the pore water phase cannot dissolve any more of the individual chemical, i.e. where the soil vapour is at equilibrium with the pore water, then the soil vapour source cannot exceed a level that would result in the maximum allowable vapour risk for the given scenario, therefore the limit is not limiting.

NR No recommended soil assessment criteria are currently available for the indicated parameter(s).

1 HIL B - Residential with minimal opportunity for soil access; inlcuding dwellings with fully and permenantly paved yard space such as high-rise buidlings and apartments.

2 Arsenic - HIL assumes 70% oral bioavailability. Site-specific bioavailability may be important and should be considered where appropriate (refer to NEPM 1999 Schedule B7 2013 Amendment).

3 Thresholds are for Chromium VI. It is assumed all detected Chromium is Chromium (VI), as Chromium (III) would be too unstable to exist under normal circumstances.

4 Lead - HIL is based on blood lead models (IEUBK for HILs A, B and C and adult lead model for HIL D where 50% oral bioavailability has been considered. Site-specific bioavailability may be important and should be considered where appropriate.

5 Value shown is representative of inorganic mercury as provided in Table 1A(1) (refer to NEPM 1999 Schedule B1 2013 Amendment).

6 EIL values are for urban residential and public open space. In the cases where the physiochemical properties of soils were not tested for ABC calculation, the most stringent limit values are adopted.

7 Aged values are applicable to arsenic contamination present in soil for at least two years. For fresh contamination refer to NEPM 1999 Schedule B5c 2013 Amendment.

Table T3 – Summary of Soil Investigation Results for TPH, BTEX and Naphthalene

Sample ID	Depth (m below ground level)	Primary Soil Texture	Total Petroleum Hydrocarbons (mg/kg)				Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (Volatile) (mg/kg)
			F1[1]	F2[2]	F3[3]	F4[4]					
BH1-1	0.16-0.26	FILL: Sand	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH1-2	0.5-0.6	FILL: Sandy Gravel	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH1-3	1.0-1.1	FILL: Sandy Gravel	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH1-7	3.4-3.45	Silty CLAY	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH2-1	0.17-0.28	FILL: Sand	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH3-1	0.3-0.5	FILL: Sand	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH3-2	1.2-1.3	FILL: Clay	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH4-1	0.4-0.5	FILL: Silty SAND	<25	28	110	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH4-3	3.2-3.3	Sandy CLAY	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH5-1	0.0-0.1	FILL: Silty SAND/SILT	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH5-2	0.4-0.5	FILL: Sandy Gravel	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH6-1	0.0-0.2	FILL: Sand	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH7-1	0.0-0.1	FILL: Clay	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH8-1	0.15-0.3	FILL: Gravel	<25	<25	130	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH8-2	0.5-0.6	FILL: Gravelly Clay	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH9-1	0.3-0.4	FILL: Sand	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH10-1	0.4-0.5	FILL: Sand	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH10-2	0.7-1.0	FILL: Clay	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH11-1	0.28-0.4	FILL: Sand	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH12-1	0.2-0.4	FILL: Sand	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH13-1	0.3-0.5	FILL: Sand	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
BH13-2	0.5-0.7	FILL: Clay	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.1
SILs											
HSL A & B	0 m to <1 m	Sand	45	110	NL	NL	0.5	160	55	40	3
	1 m to <2 m		70	240	NL	NL	0.5	220	NL	60	NL
	2 m to <4 m		110	440	NL	NL	0.5	310	NL	95	NL
HSL A & B (Clay)	0 m to <1 m	Clay	50	280	NL	NL	0.7	480	NL	110	5
	1 m to <2 m		90	NL	NL	NL	1	NL	NL	310	NL
	2 m to <4 m		150	NL	NL	NL	2	NL	NL	NL	NL
ESLs[5]		Coarse grained	180*	120*	300	2800	50	85	70	105	170
		Fine grained			1300	5600	65	105	125	45	
Management Limits[6]		Coarse grained	700	1000	2500	10000	NL	NL	NL	NL	NR
		Fine grained	800		3500		NL	NL	NL	NL	

Notes:

SIL	Soil investigation level.
HSL	Health screening levels (w/w) based on Residential A developments.
ESL	Ecological screening levels (mg/kg), shown values are based for urban residential and public open space developments.
Management limits	As per Table 1 B(7) in NEPM 1999 Schedule B1 2013 Amendment.
NL	'Not Limiting' If the derived soil vapour limit exceeds the soil concentration at which the pore water phase cannot dissolve any more of the individual chemical, i.e. where the soil vapour is at equilibrium with the pore water, then the soil vapour source cannot exceed a level that would result in the maximum allowable vapour risk for the given scenario, therefore the limit is not limiting.
NR	No recommended soil assessment criteria are currently available for the indicated parameter(s).
1	To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.
2	To obtain F2 subtract naphthalene from the >C10-C16 fraction.
3	F3 refers to Total Recoverable Hydrocarbon >C16-C34.
4	F4 refers to Total Recoverable Hydrocarbon >C34-C40.
5	ESLs are of low reliability except where indicated by * which indicates that the ESL is of moderate reliability. Shown values are for urban residential and public open space.
6	Management limits are applied after consideration of relevant ESLs and HSLs.

Table T4 – Summary of Soil Investigation Results for PAH & Phenols

Sample	Polyaromatic Hydrocarbons (mg/kg)		
ID	Carcinogenic PAHs (as Benzo[a]pyrene TEQ)	Benzo(a)pyrene	Total PAHs
BH1-1	<0.3	<0.1	<0.8
BH1-2	<0.3	<0.1	<0.8
BH1-3	<0.3	<0.1	<0.8
BH2-1	<0.3	<0.1	<0.8
BH3-1	0.4	0.3	2.2
BH3-2	<0.3	0.1	1.1
BH4-1	<0.3	<0.1	1.6
BH4-3	<0.3	0.1	1.6
BH5-1	<0.3	<0.1	<0.8
BH5-2	<0.3	<0.1	<0.8
BH6-1	<0.3	<0.1	<0.8
BH7-1	0.4	0.2	2.1
BH8-1	<0.3	0.1	1.5
BH8-2	<0.3	<0.1	<0.8
BH9-1	0.4	0.2	2.3
BH10-1	<0.3	<0.1	<0.8
BH10-2	<0.3	<0.1	<0.8
BH11-1	<0.3	<0.1	<0.8
BH12-1	<0.3	<0.1	<0.8
BH13-1	<0.3	<0.1	<0.8
BH13-2	<0.3	<0.1	<0.8
SILs			
HIL B[1]	4	NR	400
ESLs[2]	NR	0.7	NR

Notes:

SIL	Soil investigation levels.
HIL	Health-based investigation levels (mg/kg).
ESL	Ecological screening levels (mg/kg) as per NEPM 1999 Schedule B1 2013 Amendment.
NR	No recommended soil assessment criteria are currently available for the indicated parameter(s).
NA	Not analysed.
1	HIL B - Residential with minimal opportunity for soil access; inlcuding dwellings with fully and permenantly paved yard space such as high-rise buidlings and
2	Shown ESL values are for urban residential and public open space.

Table T5 – Summary of Soil Investigation Results for Asbestos

Sample ID	Asbestos (% w/w)
BH1-1	< 0.01
BH2-1	< 0.01
BH3-1	< 0.01
BH3-2	< 0.01
BH4-1	<0.01
BH5-ASB_ZLB	<0.01
BH6-1	< 0.01
BH7-1	< 0.01
BH8-1	< 0.01
BH8-2	< 0.01
BH9-1	< 0.01
BH10-1	< 0.01
BH10-2	< 0.01
BH11-1	< 0.01
BH12-1	< 0.01
BH13-1	< 0.01
BH13-2	< 0.01
A1	ND
SIL	
HSL	0.01%

Notes:

ND	Not detected.
SIL	Soil investigation level.
HSL	Health screening levels (w/w) value is based on Residential A developments.

Table T6 – Summary of Soil Investigation Results for OCPs, OPPs & PCBs

Sample ID	OCPs								Total OPPs (mg/kg)	Total PCBs (mg/kg)
	Aldrin (mg/kg)	Dieldrin (mg/kg)	Endrin (mg/kg)	Chlordane (mg/kg)	Heptachlor (mg/kg)	DDT (mg/kg)	DDD (mg/kg)	DDE (mg/kg)		
BH1-1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH1-2	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH1-3	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH2-1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH3-1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH3-2	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH4-1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH5-1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH5-2	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH6-1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH7-1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH8-1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH8-2	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH9-1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH10-1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH10-2	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH11-1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH12-1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH13-1	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
BH13-2	<0.1	<0.2	<0.2	<0.2	<0.1	<0.2	<0.2	<0.2	ND	<1
SILs										
HIL B[1]	Total 6		10	50	6	Total 240			NR	1
EIL[2]	NR	NR	NR	NR	NR	180	NR	NR	NR	NR

Notes:

SIL	Soil investigation Levels.
HIL	Health-based investigation levels (mg/kg) as per NEPM 1999 Schedule B1 2013 Amendment.
EIL	Ecological Investigation Levels (mg/kg) as per NEPM.
NR	No recommended soil assessment criteria are currently available for the indicated parameter(s).
ND	Not detected.
1	HIL B - Residential with minimal opportunity for soil access; inlcuding dwellings with fully and permenantly paved yard space such as high-rise buidlings and apartments.
2	Shown EIL values are for urban residential and public open space.

Table T7 – Summary of Soil Investigation Results for VOCs

Sample ID	Trichloro-ethylene (TCE)	Perchloro-ethylene (PCE)	Vinyl chloride (Chloroethene)	trans-1,2-dichloroethene	1,1-dichloro-ethane	cis-1,2-dichloroethene	Chloroform	1,2-dichloro-ethane	1,1,1-tri-chloroethane	Bromodi-chloro-methane	1,1,2-tri-chloroethane	Bromoform	1,3,5-trimethyl-benzene	1,2,4-trimethyl-benzene
BH4-1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
SILs														
RSLs	0.91	22	0.06	150	3.3	160	0.29	0.43	8700	0.27	1.1	62	780	62
EILs	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR

Notes:

All results are in units of mg/kg, unless noted; * PQLs were increased for these tests to accommodate sample interferences in the sample matrix (It was noted that this caused the PQL to exceed the SIL in some cases).

All soil assessment criteria are sourced from *National Environment Protection (Assessment of Site Contamination) Measure 1999 – Amendment 2013* , *Schedule (B1)* - Guideline on Investigation Levels for Soil and Groundwater (NEPM 2013).

SIL Soil investigation level.

RSLs US EPA 2012, Region 9 Screening Level for residential soil (Summary Table, April 2012) – in the absence of NEPM 2013 criteria these SILs are applied as interim working levels, only.

EIL Ecological Investigation Levels (mg total contaminant/kg) as per NEPM 1999.

NR No recommended soil assessment criteria are currently available for the indicated parameter(s).

Table T8 – Summary of Groundwater Investigation Results - Heavy Metals, BTEX, TRH and Phenols

Sample ID	Heavy Metals								BTEX					TRHs				PAH		VOCs	
	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	Benzene	Toluene	Ethylbenzene	o-xylene	m/p-xylene	F1*	F2**	F3 (>C_{16}-C_{34})	F4 (>C_{34}-C_{40})	Benzo(a)pyrene	Naphthalene	Chloroform (THM)	Other VOCs
MW1-1	<1	0.4	<1	12	<1	<0.1	93	260	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<0.1	0.3	<0.5	ND
MW2-1	<1	4.2	<1	7	<1	<0.1	45	100	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<0.1	<0.1	<0.5	ND
MW3-1	<1	1.2	<1	21	<1	<0.1	88	240	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	<500	<500	<0.1	0.2	<0.5	ND
MW5-1	<1	<0.1	<1	1	<1	<0.1	25	85	<0.5	<0.5	<0.5	<0.5	<1	<50	<60	870	<500	<0.1	0.1	1.6	ND
GIL																					
GIL (Marine Waters)	NR	0.7[3]	27 (Cr III) 4.4 (Cr VI)	1.3	4.4	0.1[3]	7	15[1]	500[1]	NR	NR	NR	NR	NR	NR	NR[4]	NR	NR	50[1]	70	NR
HSL A & B [2]	NR	NR	NR	NR	NR	NR	NR	NR	800[2]	NL[2]	NL[2]	NL	NL	1000[2]	1000[2]	NR	NR	NR	NL[2]	NR	NR

Notes: All results are in units of µg/L.

Highlighted values indicates concentration exceeds GIL.

GIL Groundwater Investigation Level. All GIL values sourced from *National Environment Protection (Assessment of Site Contamination) Measure 1999 – Amendment 2013* , *Schedule (B1)* - Guideline on Investigation Levels for Soil and Groundwater, (NEPC) Investigation levels apply to Marine Waters for typical slightly-moderately disturbed systems.

HSL Health-based Screening Level.

NR No recommended soil assessment criteria are currently available for the indicated parameter(s).

NA Not analysed.

* To obtain F1 subtract the sum of BTEX concentrations from the C6-C10 fraction.

** To obtain F2 subtract Naphthalene from the >C10-C16 fraction.

1 Indicated threshold value may not protect key species from chronic toxicity, refer to ANZECC & ARMCANZ (2000) for further guidance.

2 NEPC (2013) Table 1A(4) Groundwater HSL A & HSL B for vapour intrusion at the contaminant source depth ranges in sands 2m to <4m.

3 Chemical for which possible bioaccumulation and secondary poisoning effects should be considered, refer to ANZECC & ARMCANZ (2000) for further guidance.

4 Laboratory reporting limit was adopted as investigation criteria, as per DEC (2007) Guidelines for the Assessment and Management of Contaminated Groundwater.

APPENDIX A
Proposed Development/Vision Statement









Vision Statement

165 Milton St. Ashbury

Date: 30/05/2014

Architect: design group

Town Planner: MECONE

Landscape: SITE IMAGE Landscape Architects

Table Of Contents

1. INTRODUCTION 4
1.1 Preface 4
2. SITE CONTEXT 6
2.1 Regional 5
2.2 Access and transport 6
2.3 Local 7
3. CHANGING NATURE OF THE LOCALITY 8
3.1 Land Use Conflict 8
3.2 Sensitive design 8
4. HOUSING AND ECONOMY 9
4.1 Housing supply 9
4.2 Employment 10
5. DESIGN PRINCIPLES 11
5.1 Public domain and open space improvements 11
5.2 Landscape Masterplan 12
5.3 Permeability and connectivity 13
5.4 Streetscape architectural form 14
5.5 Concept heritage interpretation 15
5.6 Improving amenity to surrounding development 16
5.7 Maximising internal amenity for future occupants 18
6. THE VISION 19
6.1 Reinforcing the community 19
6.2 Open space integration 20
6.3 Environmentally Sustainable Development 21
7. CONCLUSION 26
7.1 Process from here 26

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Location Map

165 Milton Street, Ashbury

design group MECONE SITE IMAGE Landscape Architects

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1. Introduction



1.1 Preface

This document sets out a vision for the site 165 Milton Street, Ashbury and is prepared on behalf of Coronation Property Co. The vision aims to assist the reader in better understanding the desired outcome for the redevelopment of the site.

The site is currently zoned IN2 Light Industrial under the provisions of Canterbury Local Environmental Plan 2012 and is a large scale isolated industrial site surrounded by residential development. The site has an area of approximately 1.4 hectares and adjoining the site is a large recreational oval and residential and industrial uses. The site is within close proximity to Ashfield and Canterbury town centres and a number of public transport, educational, health and recreational facilities.

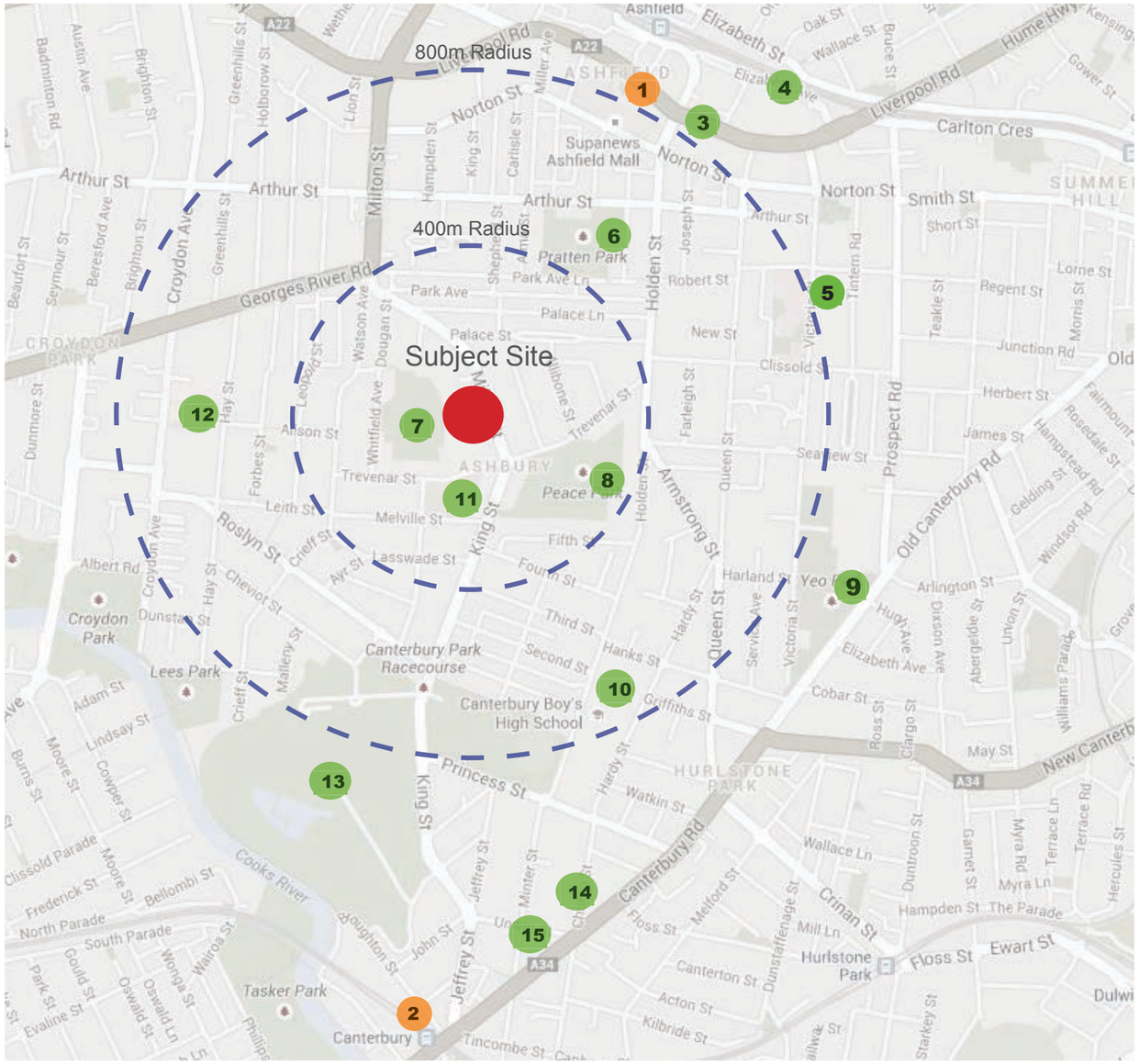
The site is considered to be a ‘catalyst site’ given the industrial zoned land is no longer suitable for industrial purposes. The vision seeks to rezone the under-utilised industrial site for residential purposes which will cater for the growing needs of additional housing and will create a more compatible land use with surrounding residential properties. The vision will create a unique opportunity to combine the redevelopment of the site with the upgrading of the adjoining WH Wagener Oval.

The vision for the site will create a number of public benefits including:

- Providing a range of housing choice to the locality including affordable housing;
- Upgrading of the underutilised oval which will create a more inviting space and promote community social interaction;
- Providing a childcare centre, gym and café which are much needed services and facilities in the Ashbury locality;
- Improving permeability and connectivity to the area with a proposed pedestrian through site link;
- Enhancing and integrating the heritage significance of the area and its articulation within the design of the development;
- Cleaning up of the industrial site with the removal of potential soil contaminants and asbestos roofing; and
- Improving safety and security to the site and park by activating the public domain and providing greater passive surveillance.

The vision creates an opportunity to integrate high quality residential accommodation with much need community facilities to create a more vibrant area and have a number of benefits for the wider community.

2. Site Context



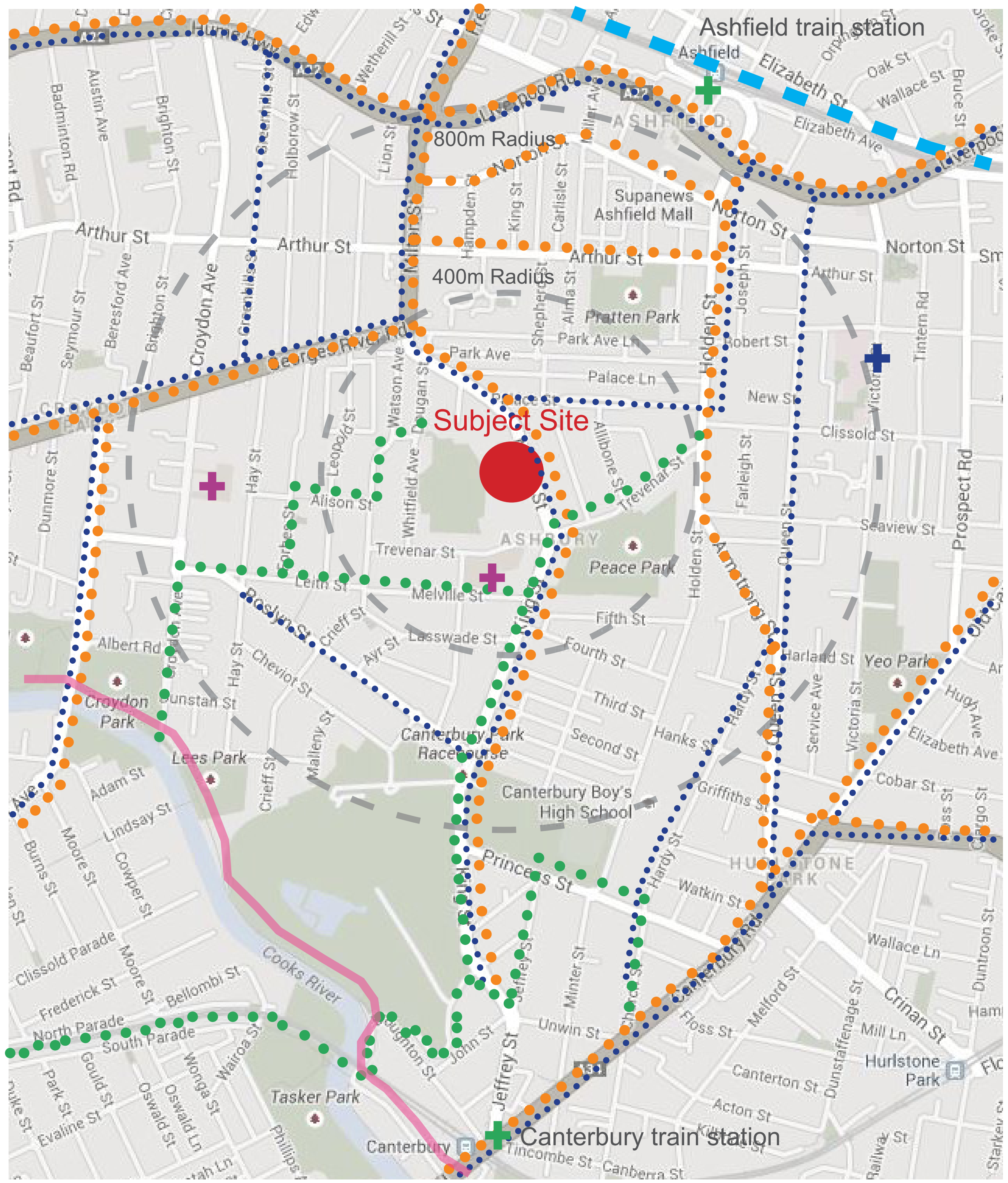
Legend

1. Ashfield train station
2. Canterbury train station
3. Ashfield Council
4. Ashfield Boys High School
5. The Sydney Private Hospital
6. Pratten Park
7. WH Wagener Oval
8. Peace Park
9. Yeo Park
10. Canterbury Boy's High School
11. Ashbury Public School
12. Sydney Missionary Bible College
13. Canterbury Park Racecourse
14. Canterbury Girl's High School
15. Canterbury Public School

2.1 Regional

The subject site is located approximately10km south-west of Sydney's CBD. The site falls within the Canterbury Local Government Area (LGA) however the north side of the oval adjoins Ashfield Municipality. The site is conveniently located in between Ashfield town centre (approximately1km to the north) and Canterbury town centre (approximately1.6km to the south) which comprise of various retail shops, cafes/restaurants and employment opportunities.

There are a number of public transport services within close proximity including Ashfield and Canterbury train stations and bus routes along Milton Road. The site benefits from being within close to a number of educational facilities including various primary and secondary schools and Sydney Missionary Bible College. There are a number of recreational uses within the locality including Canterbury Race Course (approximately 700m to the south), Cooks River (approximately 1km to the south-west) and a number of open space areas. The site is 900m south-west of The Sydney Private Hospital which provides health care for future occupants.



2.2 Access and transport

The site is well connected with public transport services, an extensive surrounding road network and various pedestrian and cycle pathways. The site has access to two train lines including the 'Airport, Inner West and South line' from Ashfield train station and 'Bankstown line' from Canterbury train station. There is a bus stop directly to the north of the site on Milton Street providing regular services to Sydney's CBD, Five Dock and Hurstville.

The vision incorporates the following access and transport arrangements:

- Encourage use of public transport by locating residential accommodation within close proximity to services;
- Create a walkable catchment and improve pedestrian permeability with the through site link from Milton Street to the Oval;
- Integrate the site with the surrounding road network;
- Create linkages with the Oval and Ashfield and Canterbury town centres;
- Promote cycling with the provision of bicycle path linking to the network along Cooks River; and
- Activate the Milton Street frontage and edges of the Oval.

Major traffic line

Major existing bus routes

Existing shared bicycle paths by Canterbury City Council

Proposed bicycle routes by Canterbury City Council

Local school

Local hospital

Train station

Railway line

2.3 Local

The site is an isolated industrial site which is irregular in shape and has an area of approximately 1.4 hectares. The site has a steep slope from Milton Street down towards the rear western boundary which abuts WH Wagener Oval (the Oval). The site has a narrow eastern frontage along Milton Street and adjoins a number of land uses to its northern, western and southern boundaries.

The Oval to the west of the site was previously used for brickworks in the first half of the 20th Century however is currently used for recreational purposes. Immediately to the east and south of the site are the rear of residential properties fronting Milton Street and Trevenar Street (respectively). Adjoining to the north of the site are industrial developments which front Milton Street.




4 WH Wagener park Whitfield Ave


5 Existing Playground



6 WH Wagener Driveway entry



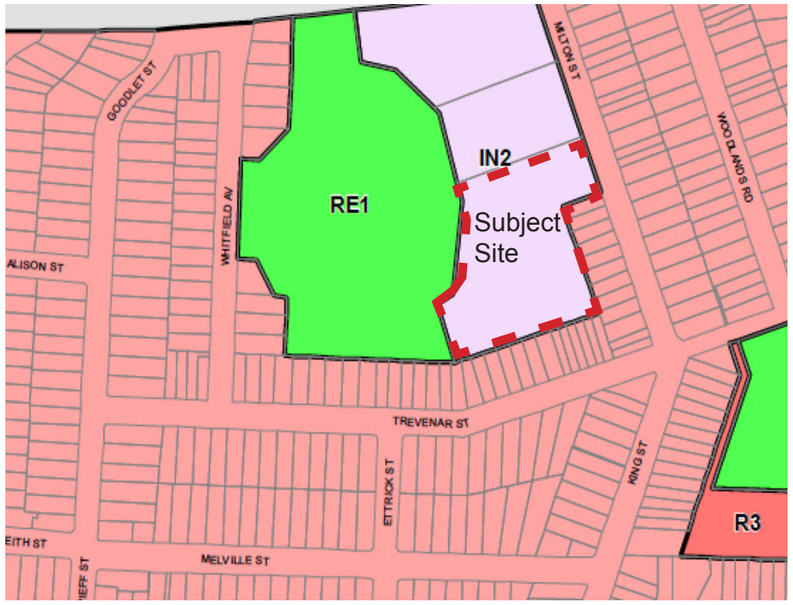
1 Site frontage on Milton Street


2 Site to north - Milton Street


3 Milton Street Houses


7 WH Wagener Oval

3. Changing Nature of the locality



Extract from Canterbury Local Environment Plan 2012 Land Zoning Map



Example of housing in the Ashbury Special Character Area



Interface inbetween industrial development and residential properties

3.1 Land Use Conflict

The current industrial use has adverse impacts upon the amenity of the adjoining residential neighbours given its early operation hours, heavy vehicles, emission of odours, general noisy environment and traffic congestion. Industrial sites are generally better located in close proximity to other industrial uses and on major transport routes easily accessible by large trucks where there are no conflicts with surrounding uses. The site is considered to be a 'catalyst site' given the site is no longer suitable for industrial purposes.

The proposal creates an opportunity to clean up the site by removing any potential soil contaminants and removal of the large existing asbestos roof. Furthermore, the proposal will alleviate the road network, as it will remove heavy vehicles from local residential streets. The residential use will be a more suitable use for the site and is compatible with surrounding

3.2 Sensitive design

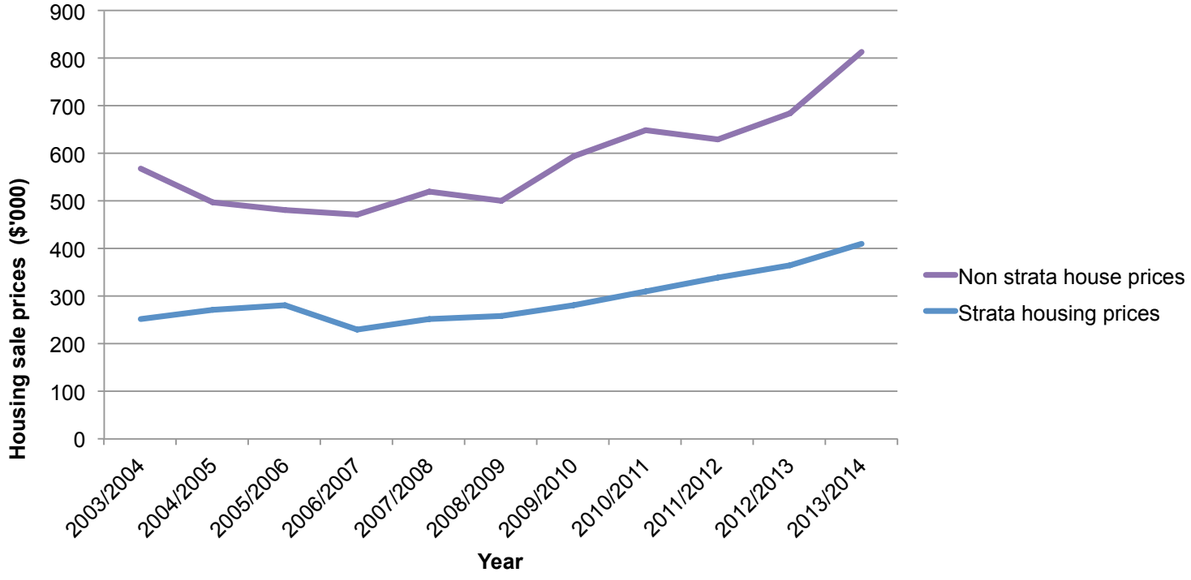
The residential properties to the east and south fall within the Ashbury Special Character Area while the Oval has significant importance given it was one of five brickyards within the Canterbury LGA. The area is characterised by predominantly single storey dwellings on small allotments ranging from Inter-War Californian Bungalows, late Inter-War dwellings to late Federation houses with established landscaping and street tree plantings, and consistent use of traditional materials such as face brick, terracotta tiled roofing, and timber framed windows and doors. Preliminary heritage advice has been provided by City Plan Heritage that supports the proposed scale, layout and overall approach of the redevelopment.

The redevelopment of the site will respect the established key characteristics of the Ashbury Special Character Area. The proposal seeks to reference the former use of the Oval through the use of brick to construct a gateway feature. The artwork to the edges of the Oval will reflect the heritage significance of the Ashbury locality and there is an opportunity to include the community in designing the artwork.

Dwelling supply targets and capacities											
	Dwelling creation between 2003-2012										
	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	TOTAL DWELLINGS COMPLETE	PORTION OF TARGET ACHIEVED
No. of dwellings	325	206	273	244	333	130	140	346	279	1,951	27%

Source: Canterbury Residential Development Strategy (October 2013), MDP Annual Report (2009/2010 and 2010/2011) and MDP Quarterly Monitor (June 2012) prepared by the Department of Planning and Infrastructure.

Median sale prices for strata and non-strata residential developments in Canterbury LGA in between 2003 and 2014



Source: NSW Department of Housing, FACS Anaylsis and Research - Greater Metropolicam Region: Time series of median sale prices.

4.1 Housing supply

The Draft South Subregional Strategy has identified a dwelling target of 7,100 dwellings between 2004 and 2031 for the Canterbury LGA whilst the subregion is anticipated to grow by 26,000 people from 2004 to 2031. The increased housing stock is to be accommodated in existing urban areas, focused around centres and corridors.

A total of 263 dwellings are required per annum to reach the dwelling target of 7,100 for Canterbury LGA. The table across the page illustrates the dwelling production between 2003 and 2012. An average of 246 dwellings were created per annum between 2003 and 2012 which is below the dwelling target rate. Therefore dwelling production needs to be increased in the LGA to reach the Draft South Subregional Strategy target.

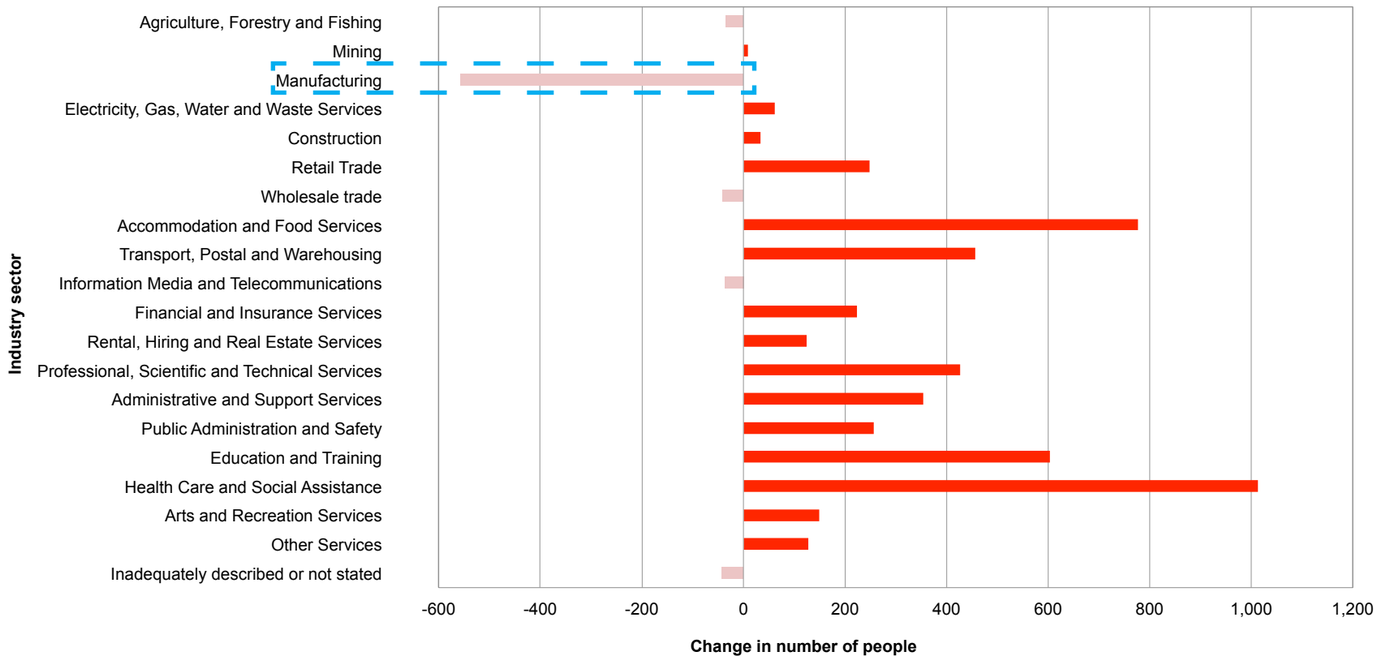
Furthermore, as demonstrated in the chart (across the page) the median sale prices for residential developments have significantly increased in between 2003 and 2014 and therefore housing affordability in the Canterbruy LGA has reduced.

The provision of further residential accommodation would assist in achieving the projected population growth for the South Subregion and dwelling targets for the Canterbury LGA whilst it would alleviate pressure on existing housing stock. The residential accommodation will be located within close proximity to Ashfield and Canterbury town centres and public transport services which link the site with Sydney's CBD.

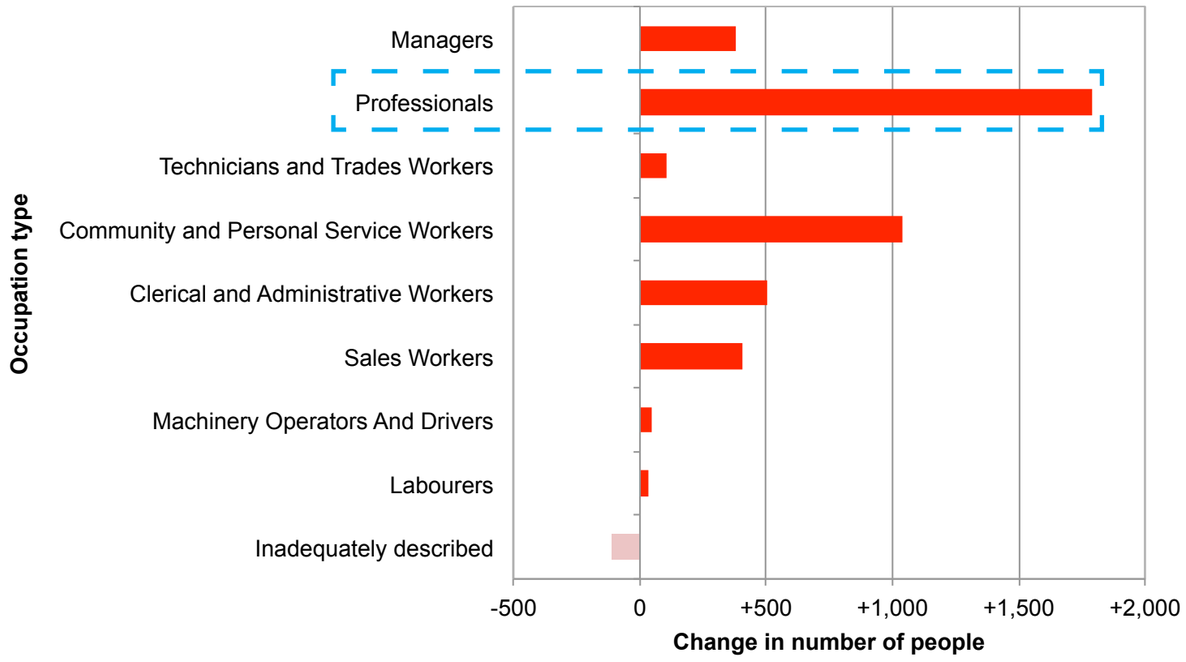
The vision creates an opportunity to incorporate a mixture of studios and 1 bedroom units which will create a stock of housing at affordable prices for singles and couples, 2 bedroom units will allow for work from home opportunities and 3 bedroom units which will create housing for young families. Furthermore, the development will provide housing for people in the ashbury market that are unable to afford detached housing stock but want to stay in the area.

Although the Canterbury Residential Development Strategy (October 2013) stipulates there is sufficient 'development ready' land available in the LGA (without the need to rezone) some of this land may have limited capacity for redevelopment given it is within a Heritage Conservation Area. Furthermore, the Canterbury Residential Development Strategy provides a decision making framework which is a tool to enable the Council to assess and determine specific requests of developers and owners of land to adjust the prevailing residential planning controls applying to specific land. The framework has been considered as part of this Vision Statement and will be addressed in greater detail at a later stage of the process.

Change in industry sectors of Canterbury LGA residents inbetween 2006 and 2011



Change in occupations of Canterbury LGA residents inbetween 2006 and 2011



Source for both tables: Australian Bureau of Statistics, Census of Population and Housing 2006 and 2011. Compiled and presented in profile.id by .id.

4.2 Employment

The number of blue-collar residents within the Canterbury LGA have been declining while white-collar residents have increased. Between 2006 and 2011 residents in manufacturing jobs decreased by 557 during this period whilst the professional sector was the fastest growing employment sector in Canterbury LGA, refer to the charts across the page.

The vision will create accommodation which is within close proximity to white collar employment in Ashfield and Canterbury town centres and will have excellent public transport links with Sydney's CBD, as well as housing stock for existing and new working families in Canterbury.

The existing tyre warehouse operation employs 25-35 people on a full time basis. There is potential for the redevelopment of the site to replace these employment numbers with jobs in the childcare centre, gym, café, and club house and also strata managers for the residential component. These potential employment opportunities will be better matched with the changing demographic profile of the residents in the area. Further, it is understood that the tyre warehouse is relocating to another site in the region that is better suited to 24 hour industrial use.

5. Design Principles



1. Cycling and running track



2. Outdoor gym equipment



8. Kids play area





3. Heritage interpretation art work



7. Childcare centre



4. Soccer field



6. Cafe



5. Potential outdoor seating /cinema

5.1 Public domain and open space improvements

The vision allows for a coordinated and master planned approach to redevelop the site and incorporate a number of public domain works and open space improvements including the following:

- Activate Milton Street with pedestrian access for the residential development along the frontage;
- Unlock the Oval for improved community access and create a through site link to connect Milton Street with the Oval;
- Improve safety and security in the Oval by removing the fencing and creating more opportunities for passive surveillance;
- Establish a local soccer sporting club which is to incorporate a soccer field and associated club house, change room facilities, gym and cafe;
- Activate the edges of the Oval with public artwork reflecting the history of the area, a kids play area and outdoor gym stations;
- Provide a landscaping buffer between surrounding residential properties and the Oval;
- Provide a childcare facility for families in the local community; and
- Create a sense of community by promoting community event such as outdoor cinemas and flower shows.

5.2 Landscape Masterplan



Masterplan

Existing building and carpark to be retained and made good

Gateway precinct
Including new facilities
-cafe
-childcare
-Gym

Bicycle track around oval

Through site link

Through site link

Milton Street streetscape

Central Open Space

Lower Private Open Space

Buffer planting in increased setback













5.3 Permeability and connectivity

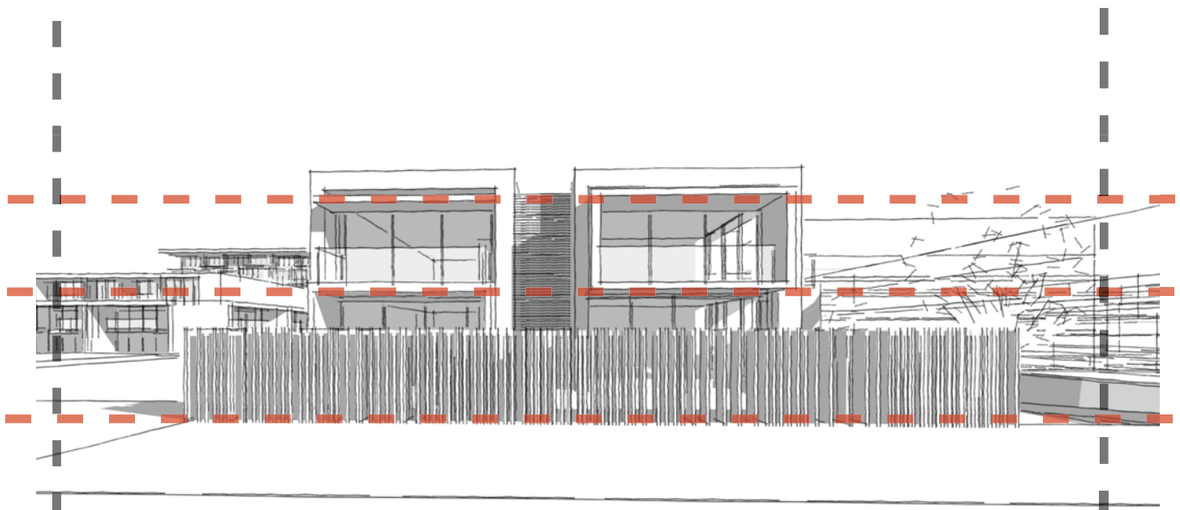
The site is currently closed off to public access and the gated park has restricted access which limits permeability and connectivity through and around the site. The vision will open up the site and create a through site link which links Milton Street to Whitfield Avenue with the focal point being the Oval. Pedestrian permeability to the area will be significantly improved and will create important connections to public transport services, recreational facilities and employment opportunities in Ashfield and Canterbury town centres and the Sydney CBD.



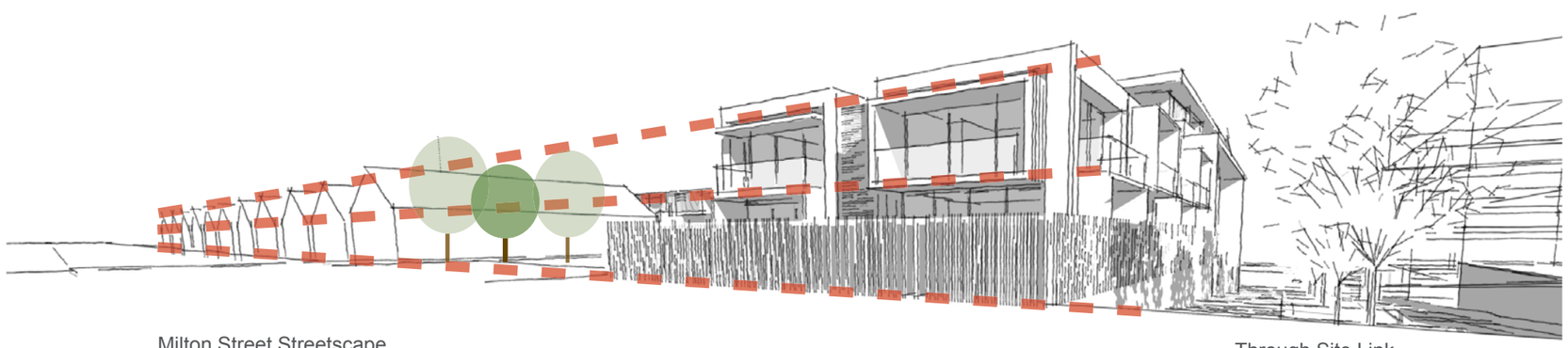
5.4 Streetscape architectural form



Adjoining Neighbours Street Pattern



Subject Site Frontage



Milton Street Streetscape

Through Site Link

The vision seeks to ensure the architectural form along Milton Street follows the street scale, respects the street pattern and rhythm and is in proportion with the adjoining built form. The visions seeks to create a two storey building height respecting the heritage nature of surrounding built form whilst it will align with the main dominant horizontal lines and elements of the existing houses for the upper level of the units fronting Milton Street.

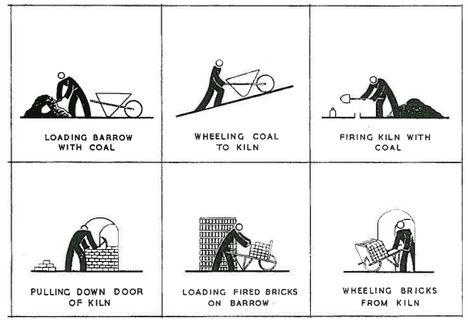
5.5 Concept heritage interpretation

The vision will ensure the enhancement and appreciation of the areas historical significance through engagement with local community including Canterbury & District Historical Society as well as through the architectural treatment of the new apartment buildings in a sympathetic and compatible manner.

The vision seeks to create a gateway to the Oval entrance at Whitfield Avenue which incorporates heritage brick piers (using recycled bricks) reflecting the former brickwork use of the site.



Ashbury brickworks klin and chimney stack



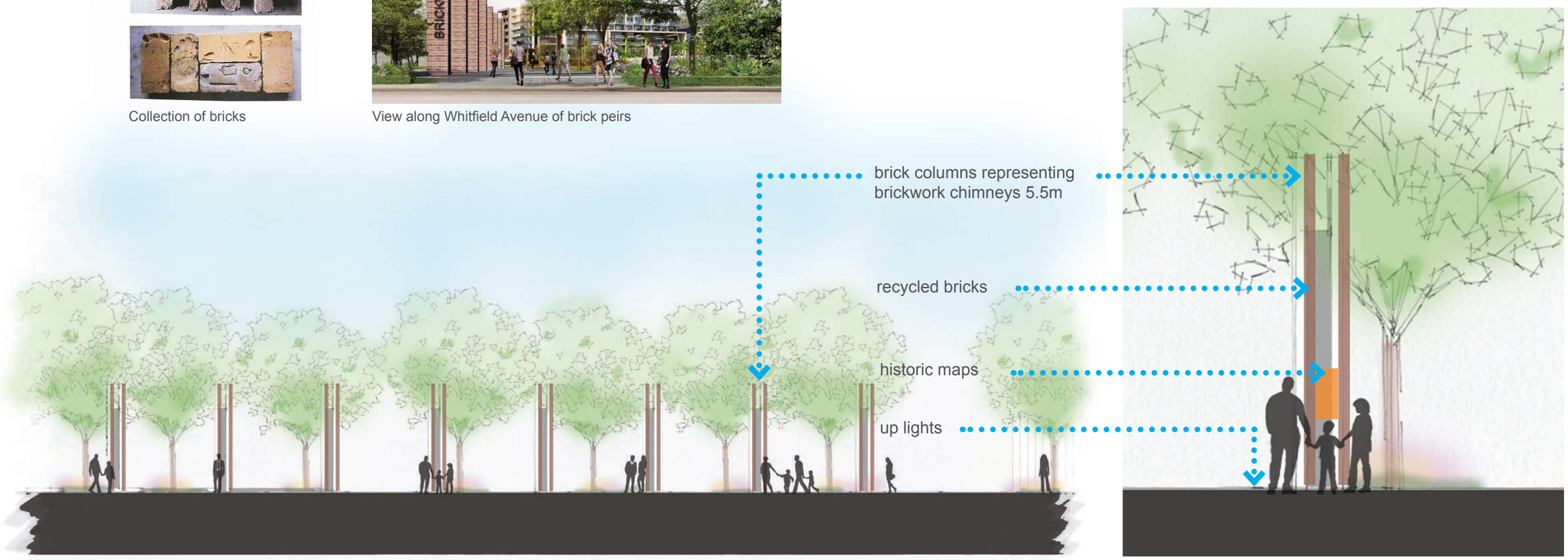
Brick works working proccess

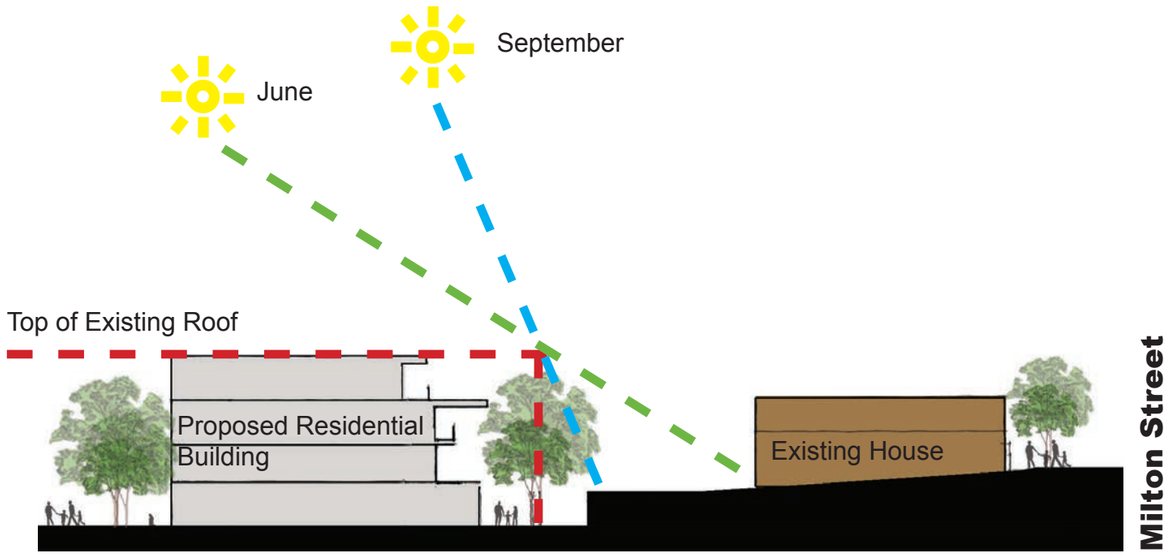


Collection of bricks



View along Whitfield Avenue of brick peirs

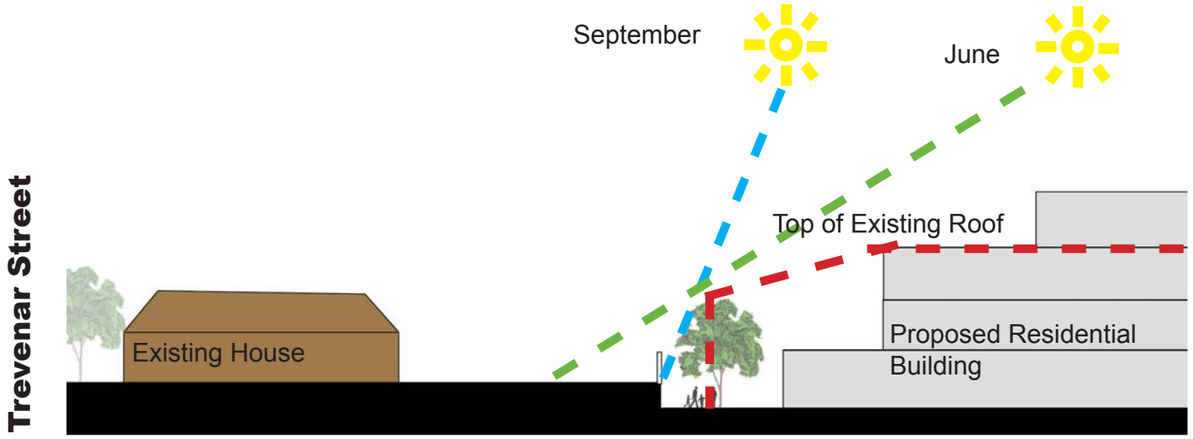




5.6 Improving amenity to surrounding development

The vision seeks to improve the relationship of the site with the adjoining residential properties to the eastern and southern boundaries. The redevelopment of the site will create a better interface with the residential properties given the built form will be setback further than the existing industrial development. Furthermore, the built form will be stepped down at the eastern and southern boundaries while the setbacks will incorporate landscaping. By reducing the built form along these boundaries the solar access to the private open space areas of the residential properties will essentially be improved, refer to solar access diagram (opposite).

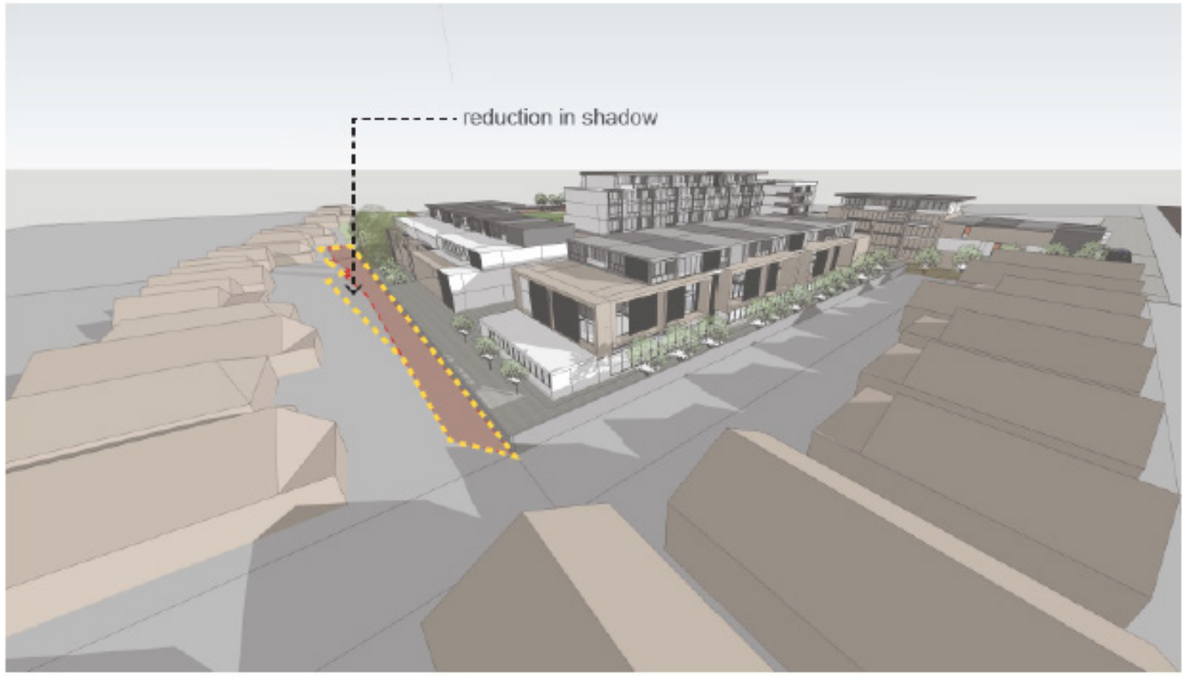
The redevelopment of the site will ensure sufficient building separation is maintained with adjoining residential properties while privacy measures such as screens and landscaped buffers will be incorporated to minimise and improve visual privacy impacts.







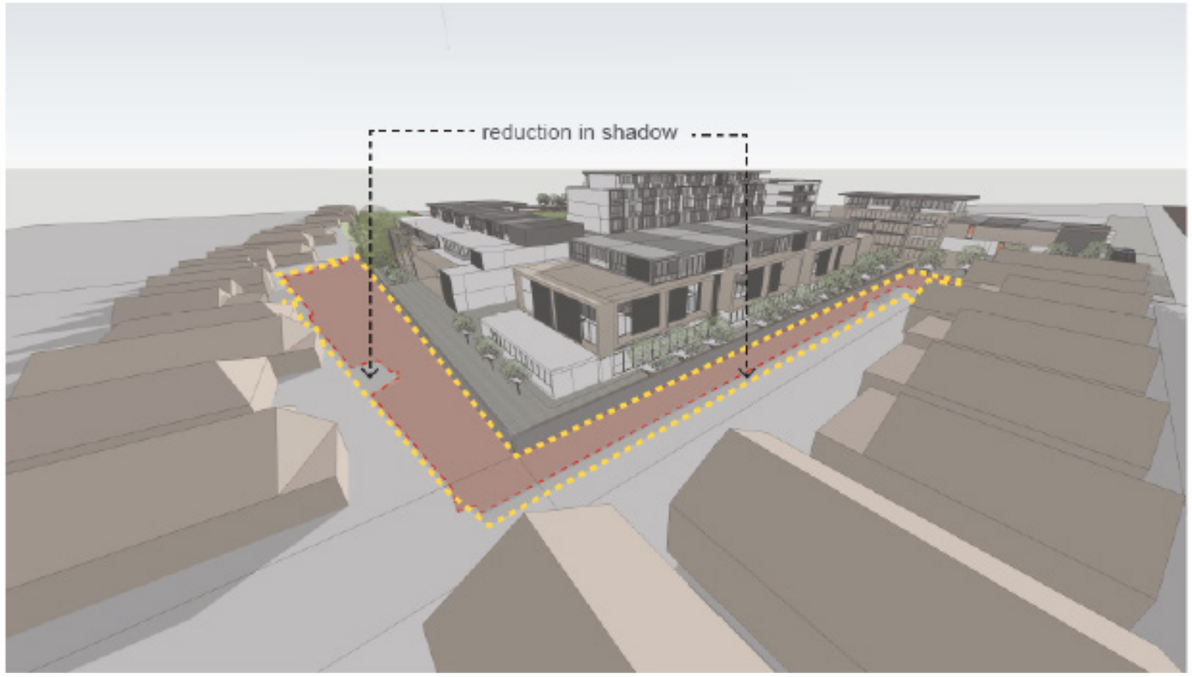
Section B



Existing and proposed shadow 9am 22 June



Existing and proposed shadow 12pm 22 June



Existing and proposed shadow 3pm 22 June

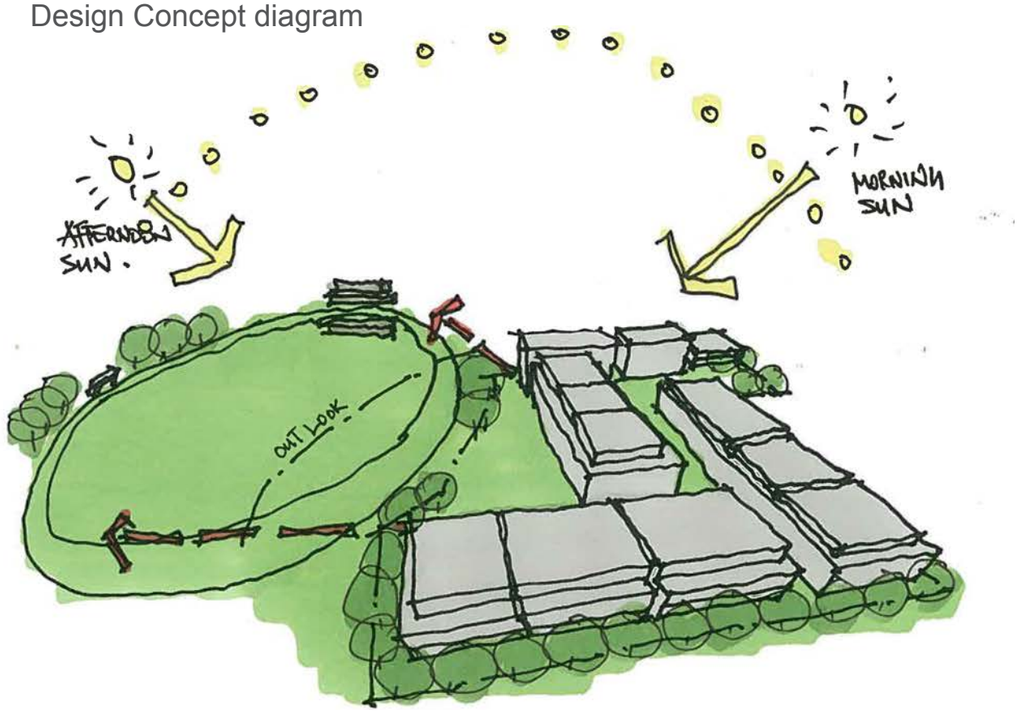
As illustrated in the shadow diagrams opposite, solar access will be maintained or improved given there will be a reduction to overshadowing at 12pm and 3pm to the adjoining residential properties.

Legend

outline of proposed shadow

outline of existing shadow

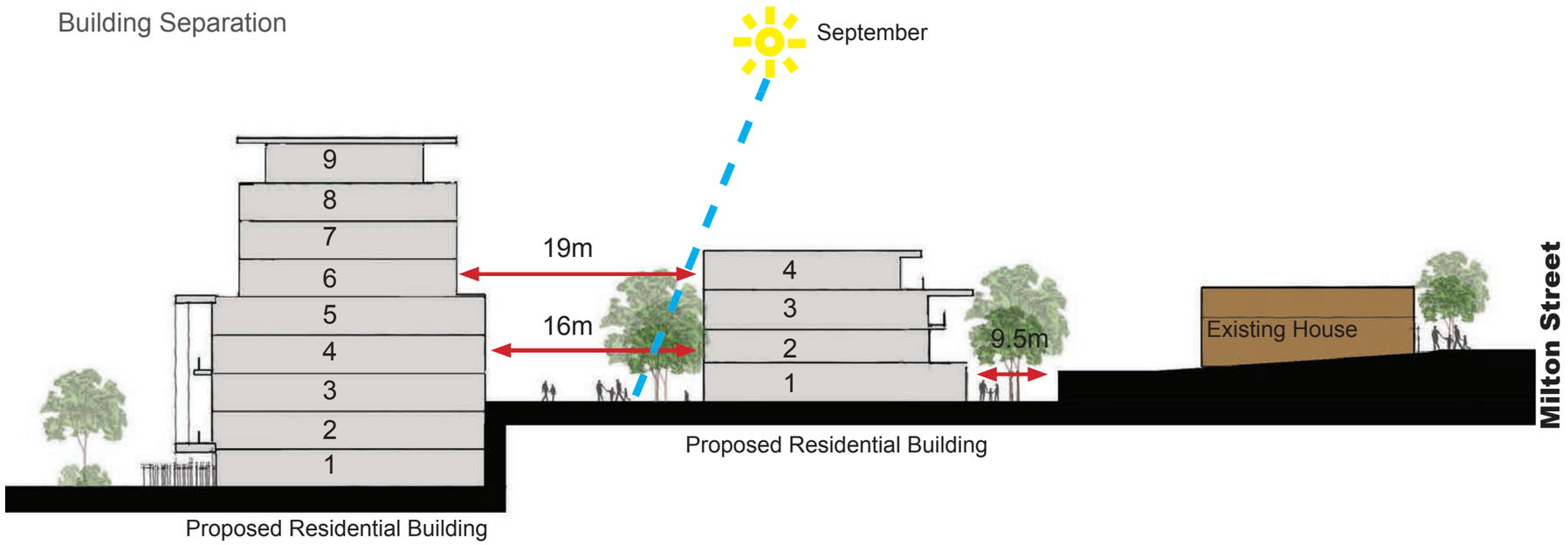
Design Concept diagram



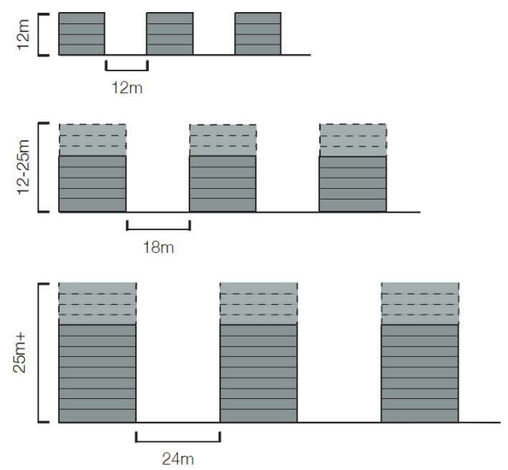
5.7 Maximising internal amenity for future residential

The vision seeks to provide a high level of internal residential amenity for future occupants. The residential development is to comply with the rules of thumb within the Residential Flat Design Code of SEPP 65. The residential units will be designed to maximise solar access and cross flow ventilation into the accommodation. The residential units will be generally orientated to the north and east to ensure sufficient solar access is achieved while dual aspect units will be encouraged where possible to promote natural ventilation. The units will generally enjoy pleasant distant outlooks whilst west facing units will look onto the Oval.

Building Separation



RFDC Building Separation Guideline:



6. The Vision



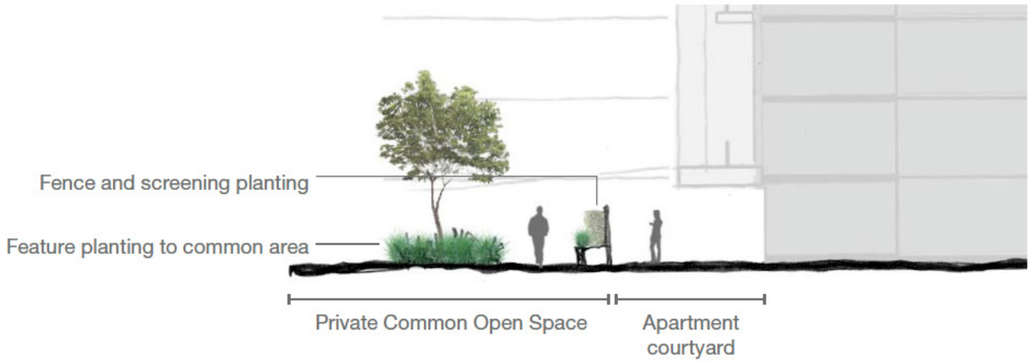
Legend

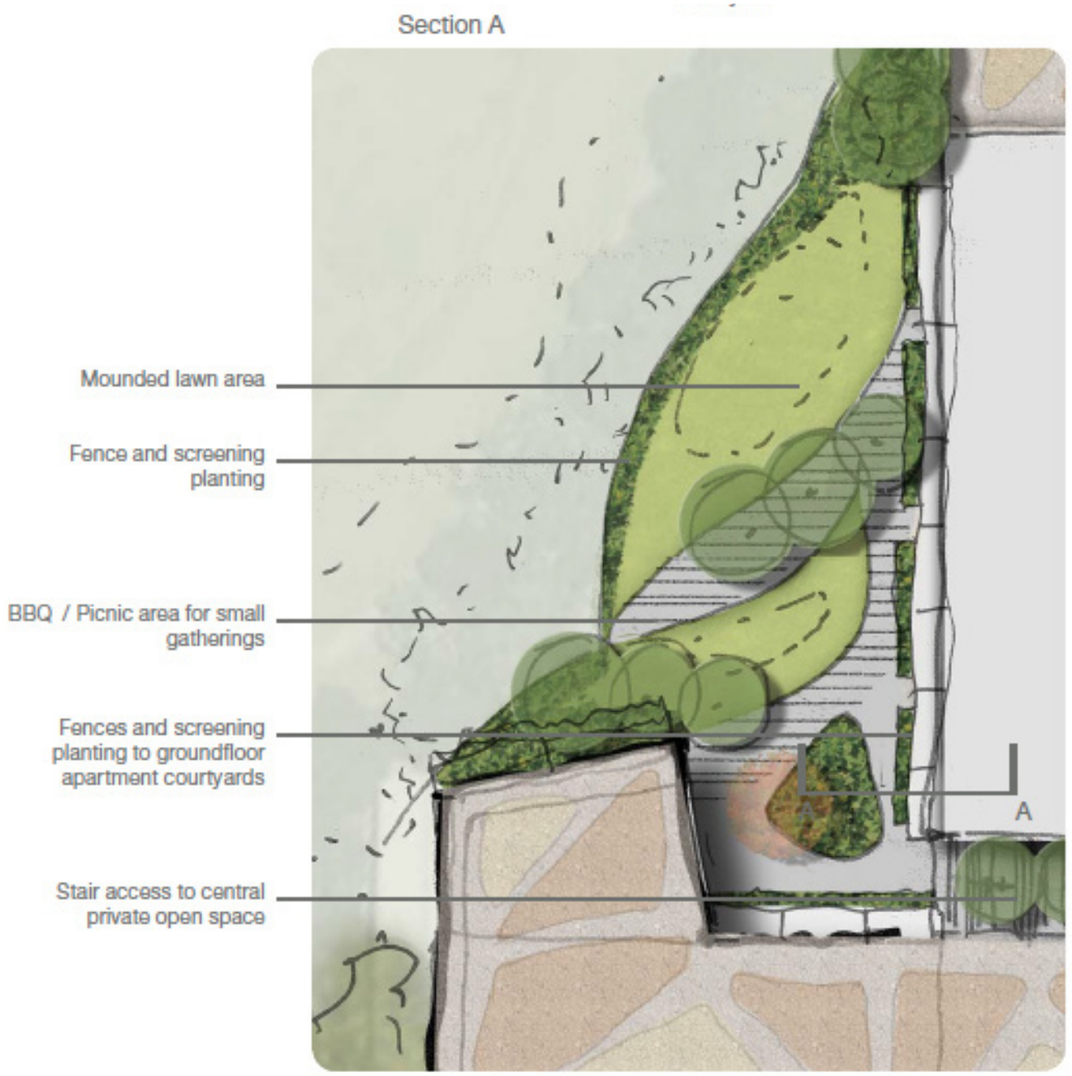
1. Through site link
2. Development site
3. Soccer ground
4. Kids play area
5. Gateway to park
6. Art work
7. Change room facrility and car parking area
8. Cafe
9. Childcare centre
10. Potential Neighbour Development
11. Fitness Station
12. Cycling and running track
13. Gym

6.1 Reinforcing the community

The vision for the site aims to create a sense of place where Ashbury community members can live, work and play through:

- Providing housing in close proximity to public transport services;
- Improving permeability and connectivity to the locality with the through site link and gateway feature reinforcing the entry into the Oval;
- Promoting community social interaction and creating local rec reational opportunities with the revitalisation of the Oval, play ground and surrounds;
- Remove heavy vehicles and trucks from the residential area;
- Improve the amenity of the properties along the boundaries of the site by maintaining or improving solar access and increasing set backs;
- Providing a childcare centre for infants under 2 which is a much needed community facility as highlighted in preliminary advice provided by CRED Community Planning;
- Creates housing close to a number of educational facilities;
- Enhancing the park with the provision of public art displays show casing the heritage of the area along the edges of the Oval;
- Respecting the heritage values and character of the Special Character Area, and integrating a sympathetic and complimentary design into the new development by keeping the scale and bulk of the buildings as low as economic viability of the development allows; and
- Using materials which are sympathetic to the Ashbury Special Character Area and reference the former use of the Oval as a brickyard.





6.2 Open space integration

The lease for the Oval has recently expired and therefore a unique opportunity exists to integrate the redevelopment of the site with the upgrading of the Oval. The Oval incorporates a high barbed wire fence to its perimeter which is generally locked and therefore creates an uninviting and inaccessible open space area. The restricted access to the Oval also encourages undesirables to congregate in the open space area at night and therefore raises safety and security concerns for community members. The vision seeks to open up the Oval and integrate it with future development in the following manner:

- Activate the eastern boundary of residential development where it adjoins the Oval and ensure the built form is stepped down to transition to this edge;

- Remove the existing fencing to improve accessibility to Oval;

- Provide a kids play area and outdoor equipment stations around the perimeter of the oval to activate these edges;

- Encourage the use of the Oval with the provision of a soccer field and associated facilities including an indoor gym and change rooms; and

- Open up views of the Oval from Milton Street via the through site link and reinforce the entrance of the Oval from Whitfield Ave with a gateway feature.



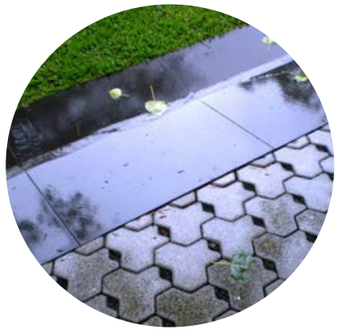




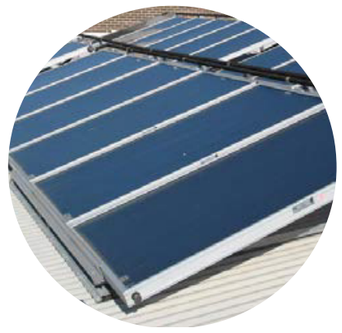
















6.3 Environmentally Sustainable Development

Innovative environmentally sustainable development initiatives will be incorporated into the design of the development including the following measures:

- Water Sensitive Urban Design – incorporate stormwater drainage to maintain and im prove water quality of runoff and enhance opportunities for the reuse of stormwater;
- Water efficient fixtures and fittings in all buildings;
- Reuse of recycled construction and demolition waste where possible;
- Lightweight construction where appropriate to improve cooling loads and thermal comfort;
- Exceed BASIX requirements;
- Promote natural cross flow ventilation and solar access to reduce reliance on artificial heating and cooling systems;
- Energy efficient active systems in buildings to reduce emissions;
- Construction waste management controls and targets to minimise waste and reuse/ recycle residuals where possible; and
- Recycle organic wastes locally where possible.



View from WH Wagener Oval

165 Milton Street, Ashbury

design group MECONE SITE IMAGE Landscape Architects

A: Level 2, 89 Chandos Street, St. Leonards, NSW 2065 I Ph: +61 2 9966 8116 I E: info@aplusdg.com.au I W: www.aplusdg.com.au



View from Milton Street

165 Milton Street, Ashbury

a+ design group | MECONE | SITE IMAGE Landscape Architects

A: Level 2, 89 Chandos Street, St. Leonards, NSW 2065 I Ph: +61 2 9966 8116 I E: info@aplusdg.com.au I W: www.aplusdg.com.au



View from through site link

165 Milton Street, Ashbury

a+ design group | MECONE | SITE IMAGE Landscape Architects

A: Level 2, 89 Chandos Street, St. Leonards, NSW 2065 I Ph: +61 2 9966 8116 I E: info@aplusdg.com.au I W: www.aplusdg.com.au

View from Whitfield Avenue

165 Milton Street, Ashbury

7. Conclusion



The ‘catalyst site’ is considered to be no longer suitable for industrial purposes whilst the large isolated industrial building face a number of land use conflicts which surrounding residential and open space uses.

There is compelling evidence there is a need for further housing in the Canterbury LGA. The site is ideal to provide residential accommodation given the lack of housing supply in the area, the site’s access to public transport services, employment in Ashfield and Canterbury, education and health services and recreational facilities. The redevelopment of the site will assist Council in achieving State Government housing and employment targets for the area.

The redevelopment of the site will create a number of public benefits such as cleaning up the industrial site, improving the Oval, providing much needed community facilities and services such as a child care centre, gym and retail shop and significantly improve the permeability of the locality.

7.1 Process from here

It is intended to prepare a Planning Proposal for the site and to formally lodge this with Canterbury Council for the rezoning of the industrial site to a residential zone. The development will require a change in planning controls that will involve LEP controls and the preparation of a Draft Development Control Plan to set out clear development parameters for the site, followed by detailed Development Applications.

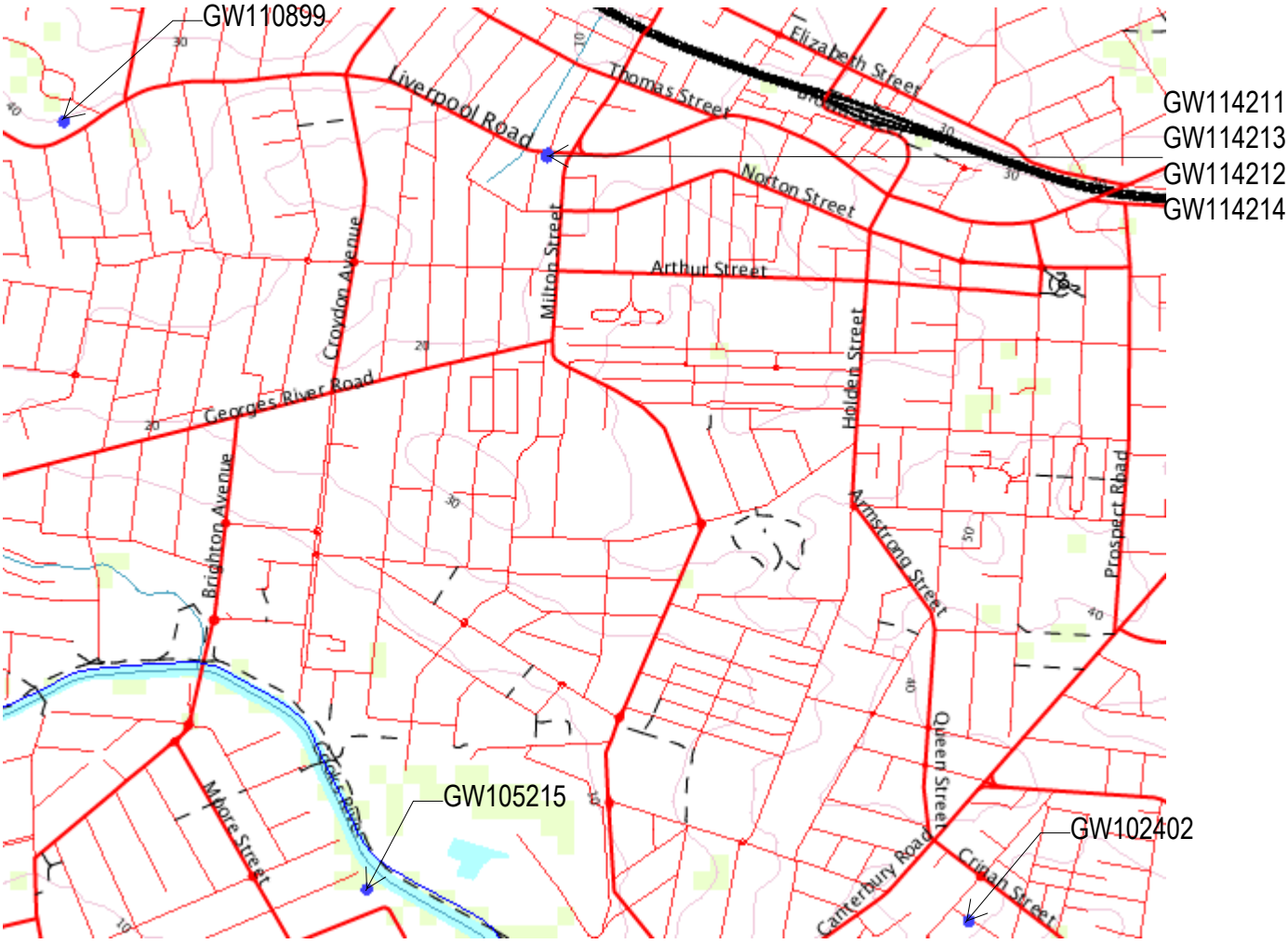
The developer and project team seek both input and an on going dialogue throughout this process with Council and its staff to ensure the provision of the best possible redevelopment of the site and upgrading of its surrounds to maximise community benefit while maintaining a market friendly affordability for buyers.

APPENDIX B
NRAtlas Groundwater Bore Search

Registered bores within 1km radius of the site

Map created with NSW Natural Resource Atlas - http://www.nratlas.nsw.gov.au

Monday, July 28, 2014



Legend

Symbol	Layer	Custodian
	Cities and large towns renderImage: Cannot build image from features	
Cowra	Populated places renderImage: Cannot build image from features	
	Towns	
Symbol	Groundwater Bores	
Symbol	Catchment Management Authority boundaries	
Symbol	Major rivers	
	Topographic base map	



Copyright © 2014 New South Wales Government. Map has been compiled from various sources and may contain errors or omissions. No representation is made as to its accuracy or suitability.

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, July 28, 2014

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW102402

Works Details (top)

GROUNDWATER NUMBER	GW102402
LIC-NUM	10WA108367
AUTHORISED-PURPOSES	DOMESTIC
INTENDED-PURPOSES	
WORK-TYPE	Bore
WORK-STATUS	(Unknown)
CONSTRUCTION-METHOD	
OWNER-TYPE	
COMMENCE-DATE	
COMPLETION-DATE	1996-01-01
FINAL-DEPTH (metres)	90.00
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	SILVA
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6246390.00
EASTING	326938.00
LATITUDE	33 54' 31"
LONGITUDE	151 7' 41"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	GIS - Geographic Information System
REMARK	

Form-A (top)

no details

Licensed (top)

COUNTY	CUMBERLAND
PARISH	PETERSHAM
PORTION-LOT-DP	26 5924

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1	1	Casing	(Unknown)	0.00	0.00	125			

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

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Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, July 28, 2014

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW114214

Works Details (top)

GROUNDWATER NUMBER	GW114214
LIC-NUM	10BL603673
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2010-01-14
FINAL-DEPTH (metres)	7.50
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	KHOURY
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6248643.00
EASTING	325856.00
LATITUDE	33 53' 18"
LONGITUDE	151 7' 1"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	PETERSHAM
PORTION-LOT-DP	34/2/1365

Licensed (top)

COUNTY	CUMBERLAND
PARISH	PETERSHAM
PORTION-LOT-DP	34 1365

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

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Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, July 28, 2014

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW114213

Works Details (top)

GROUNDWATER NUMBER	GW114213
LIC-NUM	10BL603673
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2010-01-14
FINAL-DEPTH (metres)	7.20
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	KHOURY
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6248640.00
EASTING	325855.00
LATITUDE	33 53' 18"
LONGITUDE	151 7' 1"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	PETERSHAM
PORTION-LOT-DP	34/2/1365

Licensed (top)

COUNTY	CUMBERLAND
PARISH	PETERSHAM
PORTION-LOT-DP	34 1365

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

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Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, July 28, 2014

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW114212

Works Details (top)

GROUNDWATER NUMBER	GW114212
LIC-NUM	10BL603673
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2010-01-14
FINAL-DEPTH (metres)	8.00
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	KHOURY
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6248636.00
EASTING	325854.00
LATITUDE	33 53' 18"
LONGITUDE	151 7' 1"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	PETERSHAM
PORTION-LOT-DP	34 1365

Licensed (top)

COUNTY	CUMBERLAND
PARISH	PETERSHAM
PORTION-LOT-DP	34 1365

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

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Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, July 28, 2014

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW114211

Works Details (top)

GROUNDWATER NUMBER	GW114211
LIC-NUM	10BL603673
AUTHORISED-PURPOSES	MONITORING BORE
INTENDED-PURPOSES	MONITORING BORE
WORK-TYPE	Well
WORK-STATUS	
CONSTRUCTION-METHOD	
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2010-01-14
FINAL-DEPTH (metres)	7.00
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	KHOURY
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6248634.00
EASTING	325854.00
LATITUDE	33 53' 18"
LONGITUDE	151 7' 1"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	PETERSHAM
PORTION-LOT-DP	34/2/1365

Licensed (top)

COUNTY	CUMBERLAND
PARISH	PETERSHAM
PORTION-LOT-DP	34 1365

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

Warning To Clients: This raw data has been supplied to the Department of Infrastructure, Planning and Natural Resources (DIPNR) by drillers, licensees and other sources. The DIPNR does not verify the accuracy of this data. The data is presented for use by you at your own risk. You should consider verifying this data before relying on it. Professional hydrogeological advice should be sought in interpreting and using this data.

Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, July 28, 2014

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW110899

Works Details (top)

GROUNDWATER NUMBER	GW110899
LIC-NUM	10WA109305
AUTHORISED-PURPOSES	DOMESTIC
INTENDED-PURPOSES	DOMESTIC
WORK-TYPE	Bore
WORK-STATUS	
CONSTRUCTION-METHOD	Rotary Air
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2010-06-02
FINAL-DEPTH (metres)	48.00
DRILLED-DEPTH (metres)	48.00
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	POWER
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	31.00
SALINITY	8160.00
YIELD	0.10

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	
AREA-DISTRICT	
CMA-MAP	
GRID-ZONE	
SCALE	
ELEVATION	
ELEVATION-SOURCE	
NORTHING	6248717.00
EASTING	324658.00
LATITUDE	33 53' 14"
LONGITUDE	151 6' 14"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	CONCORD
PORTION-LOT-DP	102//592227

Licensed (top)

COUNTY	CUMBERLAND
PARISH	CONCORD
PORTION-LOT-DP	102 592227

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	3.00	165			Rotary Air
1		Hole	Hole	3.00	5.50	219			Down Hole Hammer
1		Hole	Hole	5.50	48.00	156			Down Hole Hammer
1	1	Casing	Steel	-0.30	5.70	156			Driven into Hole

Water Bearing Zones (top)

FROM-DEPTH (metres)	TO-DEPTH (metres)	THICKNESS (metres)	ROCK-CAT-DESC	S-W-L	D-D-L	YIELD	TEST-HOLE-DEPTH (metres)	DURATION	SALINITY
34.00	35.00	1.00		31.00		0.10		0.25	8160.00

Drillers Log (top)

FROM	TO	THICKNESS	DESC	GEO-MATERIAL	COMMENT
0.00	3.00	3.00	CLAY BROWN		
3.00	5.00	2.00	SHALE BROWN		
5.00	15.00	10.00	SHALE GREY		
15.00	34.00	19.00	SHALE HARD		
34.00	35.00	1.00	SHALE SOFT		
35.00	48.00	13.00	SHALE HARD		

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Groundwater Works Summary

For information on the meaning of fields please see Glossary
Document Generated on Monday, July 28, 2014

Print Report

Works Details Site Details Form A Licensed Construction Water Bearing Zones Drillers Log

Work Requested -- GW105215

Works Details (top)

GROUNDWATER NUMBER	GW105215
LIC-NUM	10WA108527
AUTHORISED-PURPOSES	DOMESTIC
INTENDED-PURPOSES	DOMESTIC
WORK-TYPE	Bore
WORK-STATUS	Supply Obtained
CONSTRUCTION-METHOD	
OWNER-TYPE	Private
COMMENCE-DATE	
COMPLETION-DATE	2003-06-05
FINAL-DEPTH (metres)	15.00
DRILLED-DEPTH (metres)	
CONTRACTOR-NAME	
DRILLER-NAME	
PROPERTY	N/A
GWMA	-
GW-ZONE	-
STANDING-WATER-LEVEL	
SALINITY	
YIELD	

Site Details (top)

REGION	10 - SYDNEY SOUTH COAST
RIVER-BASIN	213 - SYDNEY COAST - GEORGES RIVER
AREA-DISTRICT	
CMA-MAP	9130-3S
GRID-ZONE	56/1
SCALE	1:25,000
ELEVATION	
ELEVATION-SOURCE	(Unknown)
NORTHING	6246456.00
EASTING	325448.00
LATITUDE	33 54' 28"
LONGITUDE	151 6' 43"
GS-MAP	

AMG-ZONE	56
COORD-SOURCE	
REMARK	

Form-A (top)

COUNTY	CUMBERLAND
PARISH	ST GEORGE
PORTION-LOT-DP	LT 7 DP 12648

Licensed (top)

COUNTY	CUMBERLAND
PARISH	ST GEORGE
PORTION-LOT-DP	7 12648

Construction (top)

Negative depths indicate Above Ground Level;H-Hole;P-Pipe;OD-Outside Diameter;
ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity

HOLE-NO	PIPE-NO	COMPONENT-CODE	COMPONENT-TYPE	DEPTH-FROM (metres)	DEPTH-TO (metres)	OD (mm)	ID (mm)	INTERVAL	DETAIL
1		Hole	Hole	0.00	15.00	175			Hand Dug
1		Hole	Hole	0.00	15.00	175			Hand Drilled
1	1	Casing	Lining	0.00	0.00				

Water Bearing Zones (top)

no details

Drillers Log (top)

no details

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APPENDIX C
Selected Site Photographs



Looking south at the northeast corner of the site.



Looking west at the northeast corner of the site, showing the general conditions of concrete driveway.



Looking east at the northwest corner of the site.



Suspected USTs location to be confirmed.



Rusting and weathered paints on pipes at the northwest face of the warehouse.



Looking south at the northwest corner of the site.



Potential chemical residual at southwest portion of the driveway.



Oil staining at southwest portion of the driveway.



Bitumen pavement conditions at the west end of the basement car park.



General conditions within the warehouse.



General conditions of the warehouse floor.



Potential asbestos containing power board located in the main electrical switch room.



Presence of fibre cemented sheeting materials along the south boundary of site.
Laboratory testing on one randomly selected fragment did not detect any asbestos in the sample.

APPENDIX D
Historical Property Titles Search

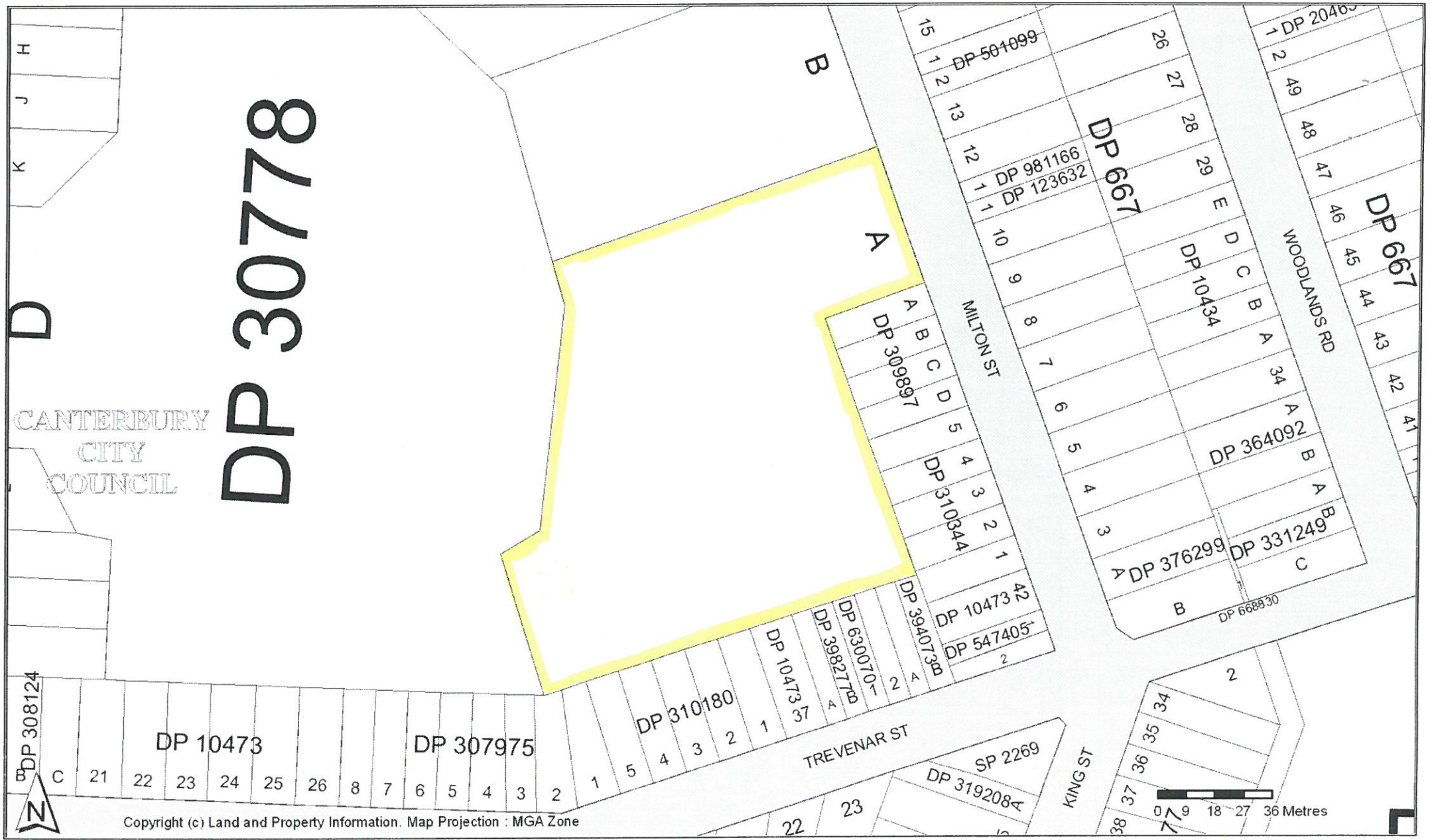
Land & Property Information
A division of the Department of Finance & Services

Cadastral Records Enquiry Report

Ref : 29

Requested Parcel : Lot A DP 30778 **Identified Parcel** : Lot A DP 30778

Locality : ASHBURY **LGA** : CANTERBURY **Parish** : PETERSHAM **County** : CUMBERLAND



Report Generated 1:12:00 PM, 12 June, 2014

Copyright © Land and Property Information ABN: 84 104 377 806

This information is provided as a searching aid only. While every endeavour is made to ensure the current cadastral pattern is accurately reflected, the Registrar General cannot guarantee the information provided. For all ACTIVITY PRIOR to SEPT 2002 you must refer to the RGs Charting and Reference Maps.

Plan Form No. 2 (For Deposited Plan)

Municipality of Canterbury
~~Shire of~~

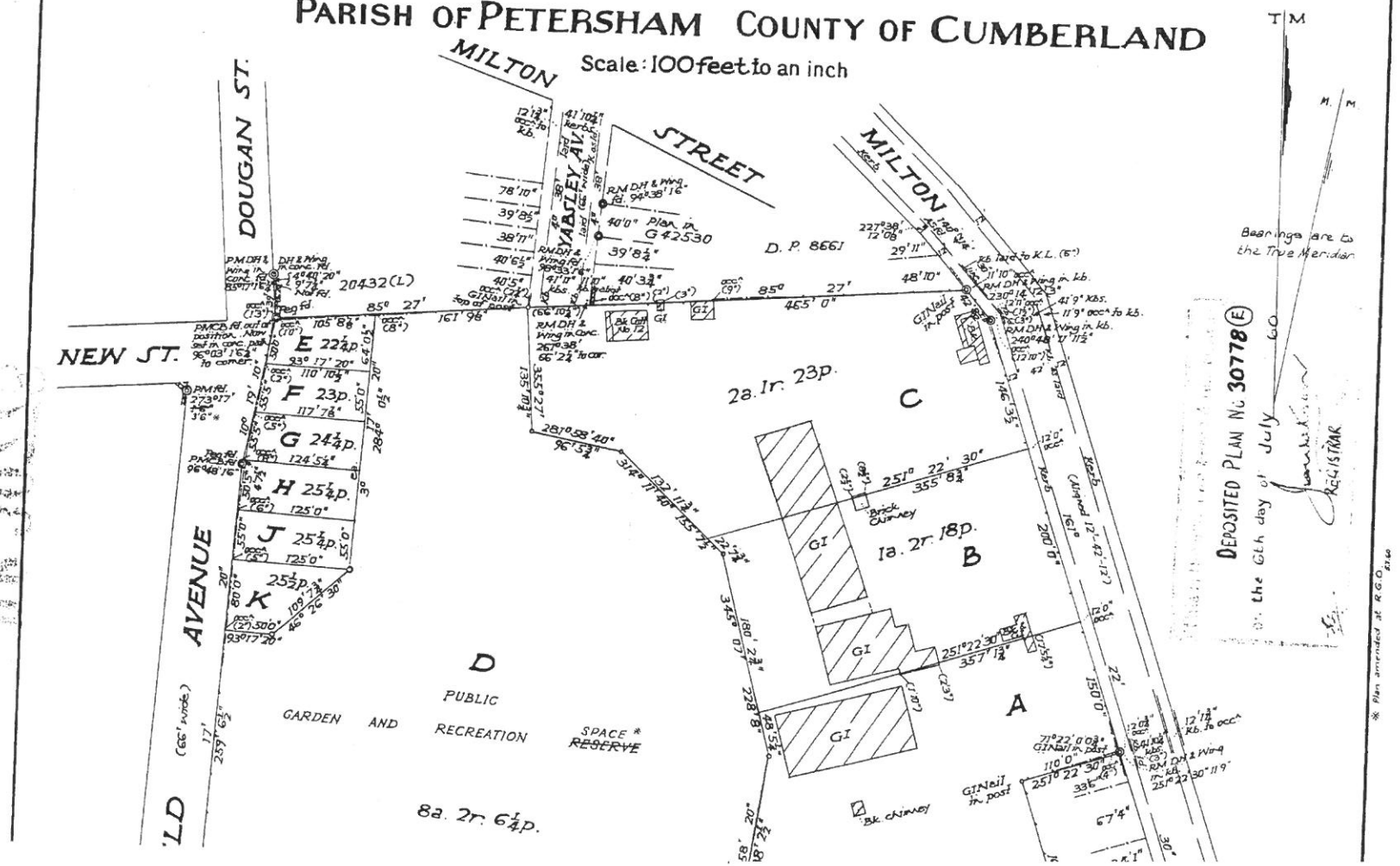
PLAN

of subdivision of land in Certificate of Title Vol. 6696 Fol. 42

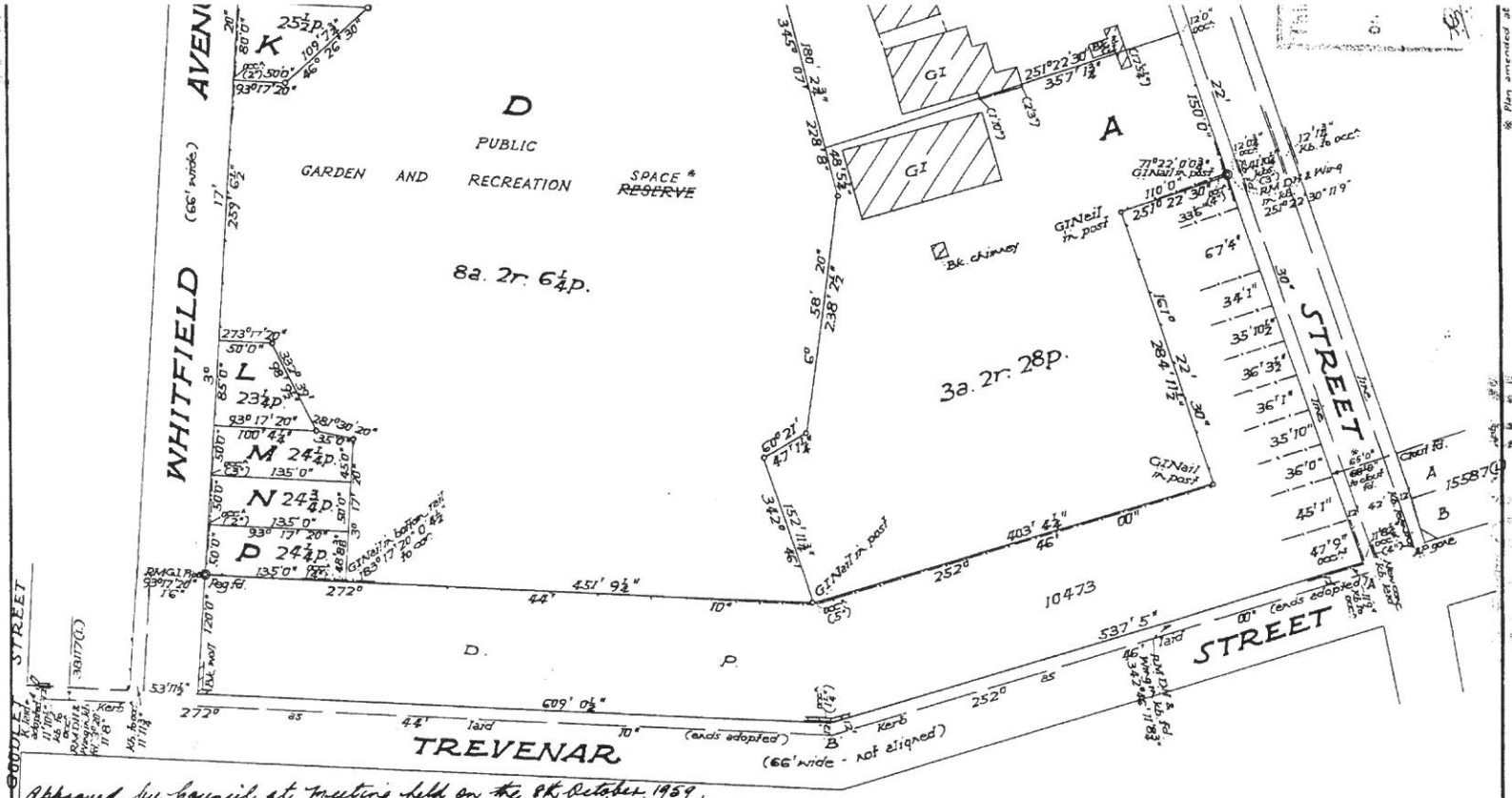
H 500693 20-5-60

PARISH OF PETERSHAM COUNTY OF CUMBERLAND

Scale: 100 feet to an inch



Req:R669381 /Doc:DP 0030778 P /Rev:16-Dec-1994 /Sts:OK.OK /Prt:12-Jun-2014 14:40 /Pgs:ALL /Seq:1 of 3
Ref:mg /Src:M



Approved by Council at Meeting held on the 8th October, 1959, certified in accordance with the provisions of Section 327 of the Local Government Act, 1919, and covered by Town Clerk's Registered No. 6219.
2nd November 1959

Town Clerk.

Approved by the Council and Certified in accordance with the Provisions of Section 327 of the Local Government Act, 1919.
Registered ~~Subdivision~~ No. 6219.

Council Clerk .....

Datum line of Azimuth A – B

~~Note: It is intended to dedicate lot D to the public for park and recreation purposes~~

I, Donald Clifton Henderson
of 13 Bligh Street, Sydney
a surveyor registered under the Surveyors Act, 1929-1946, hereby certify that the survey represented in this plan is accurate and has been made * (1) by me (2) ~~under my immediate supervision~~ in accordance with the Survey Practice Regulations, 1933, and was completed on † 1st September, 1959

(Signature) D. Henderson
Surveyor registered under the Surveyors Act, 1929-46.

* Strike out either (1) or (2). † Insert date of Survey.

* Plan amended at

Req:R669381 /Doc:DP 0030778 P /Rev:16-Dec-1994 /Sts:OK.OK /Prt:12-Jun-2014 14:40 /Pgs:ALL /Seq:2 of 3
Ref:mg /Src:M

Req:R669381 /Doc:DP 0030778 P /Rev:16-Dec-1994 /Sts:OK.OK /Prt:12-Jun-2014 14:40 /Pgs:ALL /Seq:3 of 3
Ref:mg /Src:M

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 30778

FEET	INCHES	METRES
-	0 3/4	0.019
-	0 7/8	0.022
-	1 1/4	0.032
-	1 3/8	0.035
-	1 1/2	0.038
-	2	0.051
-	2 1/4	0.057
-	2 1/2	0.064
-	3	0.076
-	4	0.102
-	4 1/2	0.114
-	5	0.127
-	6	0.152
-	7 1/4	0.184
-	8	0.203
-	8 1/2	0.216
-	9	0.229
1	-	0.305
1	3	0.381
1	6	0.457
1	6 1/4	0.464
1	6 1/2	0.470
1	10	0.559
2	3	0.686
2	11	0.889
3	6	1.067
3	7 1/4	1.099
4	7 1/2	1.410
9	7 1/4	2.927
11	1	3.378
11	8	3.556
11	8 1/4	3.562
11	8 3/4	3.575
11	9	3.581
11	10	3.607
11	10 1/2	3.620
11	11 1/2	3.645
11	11 3/4	3.651
12	-	3.658
12	0 1/8	3.661
12	0 3/4	3.677
12	1 3/4	3.702
12	3	3.734
12	10	3.912
17	5 1/4	5.315
22	7 3/4	6.902
29	11	9.119
33	6	10.211
34	1	10.389
35	-	10.668
35	10	10.922
35	10 1/2	10.935
36	-	10.973
36	1	10.998
36	3 1/2	11.062
36	11	11.062
39	8 1/4	12.097
39	8 1/2	12.103
40	-	12.192
40	3 3/4	12.287
40	5	12.319
40	6 1/2	12.357
41	9	12.725
41	10 1/4	12.757
41	11	12.776
42	-	12.802
42	6 1/2	13.018
45	-	13.716
45	1	13.741
47	1 1/4	14.357
47	9	14.554
48	5 1/4	14.764
48	5 1/2	14.770
48	8 3/8	14.843
48	8 5/8	14.849
48	10	14.884
50	-	15.240

CONVERSION TABLE ADDED IN REGISTRAR GENERAL'S DEPARTMENT

DP 30778A CONTINUED

FEET	INCHES	METRES
50	5	15.367
53	11 1/2	16.447
55	-	16.764
55	5	16.891
64	0 1/2	19.520
65	-	19.812
66	-	20.117
66	2 1/4	20.174
66	10 1/4	20.377
67	9	20.523
78	10	24.028
80	-	24.384
85	-	25.908
96	5 3/4	29.407
98	9 1/2	30.112
100	4 1/4	30.588
105	8 1/8	32.210
105	8 7/8	32.229
109	7 3/4	33.420
110	-	33.528
110	10 1/2	33.795
117	7 7/8	35.862
120	-	36.576
124	5 1/4	37.929
125	-	38.100
132	11 3/4	40.532
135	-	41.148
135	10 3/4	41.421
146	3 1/2	44.590
150	-	45.720
152	11 3/4	46.628
155	7 1/2	47.485
161	9 1/8	49.305
180	2 3/4	54.934
200	-	60.960
228	8	69.698
238	2 1/2	72.606
259	6 1/2	79.108
284	0 1/2	86.576
284	11 1/2	86.855
327	-	99.670
355	6 3/4	108.426
357	1 3/4	108.858
403	4 1/4	122.942
451	9 1/4	137.700
465	-	141.732
537	5	163.805
609	0 1/2	185.636

AC	RD	P	SQ M
-	-	22 1/4	562.8
-	-	23	581.7
-	-	23 1/4	588.1
-	-	24 1/4	613.4
-	-	24 3/4	626
-	-	25 1/4	638.6
-	-	25 1/2	645
1	2	18	6526
2	1	23	9687

AC	RD	P	HA
3	2	28	1.487
8	2	6 1/4	3.456

Historical Title

InfoTrack
An Approved LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - HISTORICAL SEARCH

SEARCH DATE
12/6/2014 2:41PM

FOLIO: A/30778

First Title(s): SEE PRIOR TITLE(S)
Prior Title(s): VOL 8027 FOL 227

Recorded	Number	Type of Instrument	C.T. Issue
31/8/1989		TITLE AUTOMATION PROJECT	LOT RECORDED FOLIO NOT CREATED
21/11/1989		CONVERTED TO COMPUTER FOLIO	FOLIO CREATED CT NOT ISSUED
21/1/1991	Z420932	DISCHARGE OF MORTGAGE	
21/1/1991	Z420933	LEASE	
21/1/1991	Z420934	TRANSFER	
21/1/1991	Z420935	MORTGAGE	EDITION 1
27/2/1991	Z495074	SUB-LEASE	
29/4/1994	U222435	DISCHARGE OF MORTGAGE	EDITION 2
19/5/1994	U261696	LEASE	EDITION 3
28/7/1994	U482879	DETERMINATION OF LEASE	
28/7/1994	U482880	LEASE	EDITION 4
25/5/1995	O254711	LEASE	EDITION 5
17/8/1999	5989992	LEASE	EDITION 6
15/3/2000	6599444	LEASE	EDITION 7
18/3/2004	AA503166	LEASE	EDITION 8
14/7/2005	AB620830	LEASE	EDITION 9
27/5/2009	AE707977	LEASE	EDITION 10
30/5/2013	AH768741	LEASE	EDITION 11
7/2/2014	AI358620	VARIATION OF LEASE	
3/6/2014	AI629586	CAVEAT	

*** END OF SEARCH ***

mg

PRINTED ON 12/6/2014

InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

Title Search

InfoTrack
An Approved LPI NSW
Information Broker

LAND AND PROPERTY INFORMATION NEW SOUTH WALES - TITLE SEARCH

FOLIO: A/30778

SEARCH DATE	TIME	EDITION NO	DATE
12/6/2014	2:40 PM	11	30/5/2013

LAND

LOT A IN DEPOSITED PLAN 30778
LOCAL GOVERNMENT AREA CANTERBURY
PARISH OF PETERSHAM COUNTY OF CUMBERLAND
TITLE DIAGRAM DP30778

FIRST SCHEDULE

PAMLITE PTY. LIMITED (T Z420934)

SECOND SCHEDULE (7 NOTIFICATIONS)

1 RESERVATIONS AND CONDITIONS IN THE CROWN GRANT(S)
2 A376695 EASEMENT APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE PART OF THE LAND AS MORE FULLY SET OUT IN TRANSFER A376695
3 B272789 COVENANT
4 J352097 EASEMENT FOR DRAINAGE APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE PART SHOWN SO BURDENED IN LOTS B & C IN PLAN WITH J352097
5 J352098 EASEMENT FOR DRAINAGE APPURTENANT TO THE LAND ABOVE DESCRIBED AFFECTING THE PART OF THE LAND 10 FEET WIDE & VARIABLE SHOWN IN PLAN WITH J352098 & LOT D IN PLAN WITH J352097
6 AH768741 LEASE TO TYRES 4 U PTY LIMITED BEING 165-171 MILTON STREET, ASHFIELD. EXPIRES: 28/2/2015. OPTION OF RENEWAL: 3 YEARS.
* AI358620 VARIATION OF LEASE AH768741 EXPIRY DATE NOW 31/8/2015.
* 7 AI629586 CAVEAT BY ASHBURY DEVELOPMENTS PTY LIMITED

NOTATIONS

UNREGISTERED DEALINGS: NIL

*** END OF SEARCH ***

mg PRINTED ON 12/6/2014

* Any entries preceded by an asterisk do not appear on the current edition of the Certificate of Title. Warning: the information appearing under notations has not been formally recorded in the Register. InfoTrack an approved NSW Information Broker hereby certifies that the information contained in this document has been provided electronically by the Registrar General in accordance with Section 96B(2) of the Real Property Act 1900.

APPENDIX E
NSW WorkCover Dangerous Goods Search

NSW GOVERNMENT | WorkCover

WorkCover NSW
92–100 Donnison Street, Gosford, NSW 2250
Locked Bag 2906, Lisarow, NSW 2252
T 02 4321 5000 F 02 4325 4145
Customer Service Centre 13 10 50
DX 731 Sydney workcover.nsw.gov.au

Our Ref: D14/076083
Your Ref: Carmen Yi

17 June 2014

Attention: Carmen Yi
Environmental Investigations Australia
Suite 6.01
55 Miller St
Pyrmont NSW 2009

Dear Ms Yi,

RE SITE: 165 Milton St Ashbury NSW

I refer to your site search request received by WorkCover NSW on 11 June 2014 requesting information on licences to keep dangerous goods for the above site.

Enclosed are copies of the documents that WorkCover NSW holds on Dangerous Goods Licence 35/015170 relating to the storage of dangerous goods at the above-mentioned premises, as listed on the Stored Chemical Information Database (SCID).

If you have any further queries please contact the Dangerous Goods Licensing Team on (02) 4321 5500.

Yours Sincerely

Brent Jones
Senior Licensing Officer
Dangerous Goods Notification Team

FOSSEYS
PTY. LIMITED
INCORPORATED IN N.S.W
165 Milton Street, Ashfield.
Telephone: 797 9111

Accounts
Mail
Cash
18 OCT 1985
Dept. of Industrial Relations & Technology

14 October, 1985.

Chief Inspector
Dangerous Goods
P.O. Box 847
DARLINGHURST. N.S.W. 2010.

Re: LICENSE NO: 35-0151703-15

Would you please note that we will be vacating the above premises during December, 1985 and the property will then be sold.

Yours faithfully,

G. L. Phillips.

Attend to file then to [illegible]

Fences Vacated
QL 6286
N/A

Name of Occupier FOSSEYS PROPERTIES LTD
(Surname) (First Names)

Trading Name (if any)

Postal Address 54 PO Box CROYDON PARK. Postcode

Address of the premises in which the depot or depots are situated 165 MILTON ST. ASHFIELD Postcode

Occupation RETAILER.

Nature of Premises HEAD OFFICE & DISTRIBUTION CENTRE.

Particulars of construction of depots and maximum quantities of inflammable liquid and/or dangerous goods to be kept at any one time.

PLEASE SKETCH SITE ON BACK OR ATTACH PLAN

Depot No.	Construction of depots *			Inflammable Liquid		Dangerous Goods						
	Walls	Roof	Floor	Mineral spirit litres	Mineral oil litres	Class 1 litres	Class 2 litres	Class 3 kg	Class 4 m^3	Class 5A# litres	Class 5B# litres	Class 9 litres
1	Underground		Tank	5000	(4546)							
2	"		"	5000	(4546)							
3												
4												
5												
6												
7												
8												
9												
10												
TOTAL												

PUBLIC REVENUE A/c
Cash | $ 4.00 (A)
2/7/76
(Date)
Receipt No. 1070

* If kept in tanks describe depots as underground or aboveground tanks.

\# Insert water capacity of tanks or cylinders.

Name of Company supplying inflammable liquid H.E.S.

Have premises previously been licensed? YES - 15170-6

If known, state name of previous occupier AS ABOVE

Signature of applicant [signature] Date 29.6.76

CERTIFICATE OF INSPECTION

I, ADLY NOUR being an Inspector under the Inflammable Liquid Act, 1915, do hereby certify that the premises or store described above does comply with the requirements of that Act and regulations with regard to its situation and construction for the keeping of inflammable liquid and/or dangerous goods in quantity and nature specified.

Signature of Inspector [signature]

Date 29.6.76

DIRECTIONS

1. Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, Box R.216, Royal Exchange Sydney, N.S.W. 2000 and must be accompanied by the prescribed fee, as set out hereunder:

Registration of Premises (Fee $3.00 p.a.) – For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, if kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit, if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.

In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept under the like conditions; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil.

Store License, Div. A (Fee, $6.50 p.a.) – For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or mineral spirit, and/or Dangerous Goods of Classes 1, 2 and 9.

Store License, Div. B (Fee, See Regulation 7) – For quantities exceeding 4,000 gallons of mineral spirit, and/or dangerous goods of Classes 1 and 2, and/or dangerous goods of Class 3.
For the keeping of Dangerous Goods of Classes 3 and/or 4. ($15.00 p.a.).

Fees for the keeping of inflammable liquid and dangerous goods in excess of the above stated quantities and also for Liquid Petroleum Gas storage are set out in Regulation 7.

1. Name of occupier including full christian names. — FOSSEYS PROPERTIES LTD

2. Trading Name (if any)

3. Locality of the premises in which the depot or depots are situated — No. or Name 165; Street Milton Street,; Town ASHFIELD

4. Postal address — Box 54, P.O., CROYDON PARK. Postcode 2133

5. Occupation — retailers

6. Nature of premises (dwelling, garage etc.) — warehouse

6.

7. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time.

PLEASE ATTACH PLAN OF PREMISES

Depot No.	Construction of depots*			Inflammable liquid		Dangerous goods					
	Walls	Roof	Floor	Mineral spirit gallons	Mineral oil gallons	Class 1 gallons	Class 2 gallons	Class 3 lb	Class 4 cu ft	Class 5A water gal	Class 9 gallons
1	UNDERGROUND TANK			1000							
2											
3											
4											
5											
6											
7									CHQ.		6-50.
8											
9											24/5/71
10											1709

*If product is kept in tanks describe depots as underground or aboveground tanks.

Signature of applicant X Letter EKB

Date of application _____, 19___

CERTIFICATE OF INSPECTION

I, A Leonard Bartlett being an Inspector under the Inflammable Liquid Act, 1915 (as amended), do hereby certify that the premises or store herein referred to and described is suitable with regard to its situation and construction for the safe keeping of inflammable liquid and/or dangerous goods in quantity and nature specified.

Place Sydney 27 Oct 71

Signature of Inspector A. L. Bartlett

alteration or amendment of any such Registration or Licence, for the keeping of Inflammable Liquid and/or Dangerous Goods, in accordance with the provisions of the Inflammable Liquid Act, 1915 (as amended), for the ensuing year.

EXPLANATORY

(Shell Pumps)

Inflammable Liquid—

Mineral Oil—includes kerosene, mineral turpentine and white spirit (for cleaning), and compositions containing same.

Mineral Spirit—includes petrol, benzene, benzolene, benzol and naphtha, and compositions containing same.

Dangerous Goods—

Class 1—acetal, acetaldehyde, acetone, acrolein, amyl mercaptan, butyl acetate, butyl mercaptan, butyl propionate, crotonaldehyde, dichloro-ethylene, diethylketone, dioxane, diethylamine, dimethyl hydrozine, dipropylamine, divinyl ether, dipropyl ether, ethyl acetate, ethyl acrylate, ethyl chloride, ethyl ether, dichloroethane (ethylene dichloride), ethyl mercaptan, ethyl methacrylate, ethyl methyl ether, ethyl propyl ether, ethyl propionate, methyl propyl ketone, methyl acetate, methyl acrylate, methylal, methyl ethyl ether, methyl ethyl ketone, methyl methacrylate, methyl vinyl ketone, methyl vinyl acetate, piperidine, propanal, propyl acetate, propylamine, propylene oxide, pyridine, tetrahydrofuran, thiophene, triethylamine, valeraldehyde, vinyl acetate, vinyl allyl ether, vinyl butyl ether, vinyl butyrate, vinyl cyanide (acrylonitrile), vinylidene chloride, vinyl ethyl ether, vinyl propyl ether, vinyl propionate, any combination of substances of an inflammable character suitable for use as an industrial solvent and having a true flashing point of less than 73 degrees Fahrenheit manufactured products, containing organic solvents, having a true flashing point of less than 73 degrees Fahrenheit.

Class 2—acetic acid, acetyl acetone, acetic anhydride, allyl alcohol, amyl acetate, amyl alcohol, butyl alcohol, butyl methacrylate, chlorobenzene, cyclohexanone, dibutyl ether, dibutyl ketone, dipentene, epichlorohydrin, ethanol (ethyl alcohol), ethyl benzene, ethylene diamine, furfural, mesityl oxide, methyl alcohol, methyl amyl ketone, methyl butyl ketone, pine oil (having a flashing point below 150° F), propyl benzene, propanol, vegetable turpentine, vinyl benzene (styrene monomer), any liquid containing more than 50 per centum ethyl alcohol, manufactured products, containing organic solvents, having a true flashing point of 73 degrees Fahrenheit and above but not exceeding 150 degrees Fahrenheit.

Class 3—nitro-cellulose moistened with an alcohol, nitro-cellulose product. Transfer and renew from date of first fill

Class 4—compressed or dissolved acetylene contained in a porous substance.

Class 5 (A)—liquefied inflammable gases (liquefied petroleum gas, vinyl chloride, ethylene chloride, ethylene oxide, butadine, methylamine, dimethylamine, and trimethylamine).

Class 9—carbon, disulphide, ethyl nitrite. A15170

DIRECTIONS

Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, Sydney, and must be accompanied by the prescribed fee, as set out in Regulation 7.

1. Name of occupier including full Christian names — FOSSEYS PROPERTIES LTD

2. Occupation — WAREHOUSE AND RETAIL

3. Locality of the premises in which the depot or depots are situated — No. or Name 165 ~~STATE~~; Street MILTON ST; Town ASHFIELD

4. Nature of premises (Dwelling, Garage, Store, etc.) 16/6. — WAREHOUSE

Postcode 2131

5. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time

~~PLEASE ATTACH PLAN OF PREMISES~~

Depot No.	Construction of depots*			Inflammable liquid		Dangerous goods					
	Walls	Roof	Floor	Mineral Spirit gallons	Mineral Oil gallons	Class 1 gallons	Class 2 gallons	Class 3 lb	Class 4 cu ft	Class 5A water gallons	Class 9 gallons
1	Underground		Tank	1000							
2				1000							
3											
4											
5											
6								PUBLIC REVENUE A/c.			
7								Chq		6-50	
8											16/6/70
9								(Date)			
10								Receipt No.		585	

* If product is kept in tanks describe depots as underground or aboveground tanks.

FOSSEYS PROPERTIES LTD.

Signature of Applicant x

Postal Address x BOX 54 PO CROYDON PARK.

Date of Application x 12 JUN, 1970

EXPLANATORY

Inflammable Liquid—

Mineral Oil—includes kerosene, mineral turpentine and white spirit (for cleaning), and compositions containing same.
Mineral Spirit—includes petrol, benzene, benzolene, benzol and naphtha, and compositions containing same.

Dangerous Goods—

Class 1.—Acetone, amyl acetate, butyl acetate, carbon bisulphide; any combination of substances of an inflammable character suitable for use as an industrial solvent and having a true flashing point of less than 73 degrees Fahrenheit.

Class 2.—Nitro-cellulose (also known as "pyroxylin" and "collodion cotton") moistened with an alcohol, butyl alcohol (also known as "butanol"), methylated spirits, vegetable turpentine; and any liquid or solid containing methylated spirits, having a true flashing point of less than 150 degrees Fahrenheit.

Class 3.—Nitro-cellulose product.

Class 4.—Compressed or dissolved acetylene contained in a porous substance.

EXPLOSIVES DEPARTMENT – 8 NOV 1961 – NO.

DIRECTIONS

1. Applications must be forwarded to the Chief Inspector of Inflammable Liquid, Explosives Department, No. 16 Grosvenor Street, Sydney (Box 48, G.P.O.), and must be accompanied by the prescribed fee, as set out hereunder:—

Registration of Premises (Fee £1 10s. 0d. p.a.).—For quantities not exceeding 300 gallons of mineral oil and 100 gallons of mineral spirit, if kept together; or 800 gallons of mineral oil and 100 gallons of mineral spirit, if kept in separate depots; or 500 gallons of mineral spirit, if kept in an underground tank depot; or 800 gallons of mineral oil and 500 gallons of mineral spirit, if mineral spirit is kept in an underground tank depot.

In addition to, or in lieu of the above, similar quantities of Dangerous Goods of Classes 1 and 2 may be kept under the like conditions; reading Dangerous Goods of Class 1 for the words Mineral Spirit and Dangerous Goods of Class 2 for the words Mineral Oil.

Store License, Div. A (Fee, £3 5s. 0d. p.a.).—For quantities in excess of those stated above, but not exceeding 4,000 gallons mineral oil and/or mineral spirit, and/or Dangerous Goods of Classes 1 and 2.

Store License, Div. B (Fees, See Regulation 7).—For quantities exceeding 4,000 gallons of mineral and/or mineral spirit, and/or dangerous goods of Classes 1 and 2, and/or dangerous goods of Class 3.
For the keeping of Dangerous Goods of Classes 3 and/or 4. **(£7 10s. 0d. p.a.).**

2. The certificate of inspection at foot hereof must be signed by an Inspector under the Inflammable Liquid Act, 1915 (as amended), or Police Officer, or other officer duly authorised in that behalf, and where the premises are situated outside the Metropolitan Area of Sydney, it is requested that such certificate be obtained prior to forwarding application.

1. Name in full of occupier ... ... Moran & Cato (N.S.W.) Pty. Limited,

2. Occupation ... ... Grocery Retailers

3. Locality of the premises in which the depot or depots are situated ... No. or Name 165/171
Street Milton Street,
Town ASHFIELD

4. Nature of premises (Dwelling, Garage, Store, etc.) ... ... Store

5. Will mineral spirit be kept in a prescribed underground tank depot? Yes

6. Particulars of construction of depots and maximum quantities of inflammable liquid and/or Dangerous Goods to be kept at any one time.

Depot No.	Construction of Depots			Inflammable Liquid		Dangerous Goods			
	Walls	Roof	Floor	Mineral Spirit Gallons	Mineral Oil Gallons	Class 1 Gallons	Class 2 Gallons	Class 3 lb.	Class 4 cub. ft.
1	Underground	Tank		1000					
2	do	do		1000					
3									
4									
5									
6									
7									
8									
9									
10									

Chq 1 65 0
Public Revenue Account
(Date) 9-11-61
Receipt No. 0298

MORAN & CATO (N.S.W.) PTY. LIMITED

Signature of Applicant ACCOUNTANT

Date of Application 6th November, 1961

Postal Address Box 54 Post Office
CROYDON PARK

CERTIFICATE OF INSPECTION

I, Raymond C. Callinan being an Inspector under the Inflammable Liquid Act, 1915 (as amended), do hereby certify that the premises or store herein referred to and described is suitable with regard to its situation and construction for the safe keeping of inflammable liquid and/or dangerous goods in quantity and nature specified.

Place Sydney

Date 17/11/61

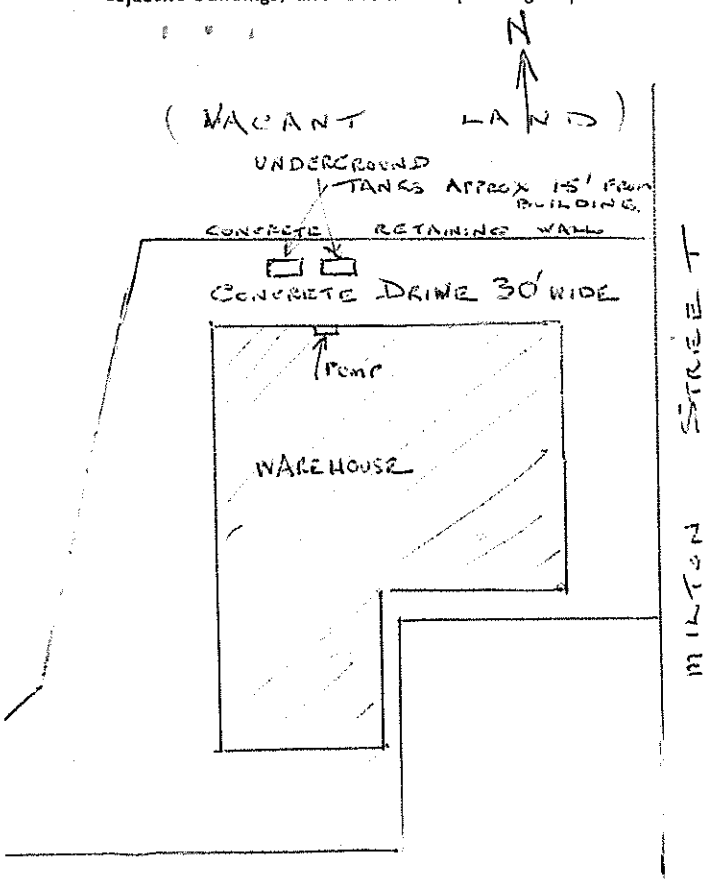
Signature of Inspector RCCallinan

[PLEASE TURN OVER

75237 8.56 MI 1862 V. C. N. Blight, Government Printer

Make Rough Sketches showing—

Ground plans of premises showing position of depot or depots and adjacent buildings, also distances separating depots and buildings.



Sketch of depot or depots showing provision made for ventilation, and the inside dimensions (length, width, and depth) of the pit or lower portion, designed to prevent outflow.

This sketch is not required for underground tanks.

TABLES SHOWING DISTANCES WHICH UNDER LICENSE MUST SEPARATE PROTECTED WORKS FROM DEPOTS

Table I.—Where Mineral Spirit and/or Dangerous Goods of Class 1 (with or without Mineral Oil and/or Dangerous Goods of Class 2) are kept or to be kept:—

In an underground Tank Depot, in quantity exceeding 500 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot, separated from protected works by a screen wall, in quantity exceeding 100 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot not separated from protected works by a screen wall, in quantity exceeding 100 gallons, but not exceeding—	Distance not less than—
Gallons	Gallons	Gallons	Feet
2,000	1,000	250	10
2,400	1,200	300	11
2,800	1,400	350	12
3,200	1,600	400	13
3,600	1,800	450	14
4,000	2,000	500	15
7,200	3,600	900	16
10,400	5,200	1,300	17
13,600	6,800	1,700	18
16,800	8,400	2,100	19
20,000	10,000	2,500	20
22,000	11,000	2,750	21
24,000	12,000	3,000	22
26,000	13,000	3,250	23
28,000	14,000	3,500	24
30,000	15,000	3,750	25
32,000	16,000	4,000	26
40,000	20,000	5,000	30
80,000	40,000	10,000	40
100,000 and over	80,000	20,000	50
	160,000	40,000	75
	320,000 and over	80,000	100
		120,000	115
		240,000	130
		400,000 and over	150

Table II.—Where Mineral Oil and/or Dangerous Goods of Class 2 only are kept or to be kept:—

In an underground Tank Depot, in quantity exceeding 800 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot, separated from protected works by a screen wall, in quantity exceeding 800 gallons, but not exceeding—	In an aboveground Tank Depot or other Depot not separated from protected works by a screen wall, in quantity exceeding 800 gallons, but not exceeding—	Distance not less than—
Gallons	Gallons	Gallons	Feet
4,000	2,000	1,000	10
8,000	4,000	2,000	15
14,400	7,200	3,600	16
20,800	10,400	5,200	17
40,000	20,000	10,000	20
80,000	40,000	20,000	30
160,000	80,000	40,000	40
320,000 and over	160,000	80,000	50
	320,000 and over	160,000	75
		320,000 and over	100

APPENDIX F
Borehole Logs

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

BOREHOLE: BH1/MW1

Project	New Residential Development	East	326132.9 m		
Location	165 Milton Street, Ashbury	North	6247699.6 m MGA94 Zone 56	Sheet	1 OF 3
Position	Refer to Figure 2	Surface RL	36.20 m AHD	Date Started	26/6/14
Job No.	E22232	Contractor	MACDRILL	Date Completed	26/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	E50	Logged AM	Date:
		Inclination	-90°	Checked RP	Date:

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HADT			0	0.15				-	FILL: CONCRETE 150 mm, with medium angular aggregate.	-		PAVEMENT
				0.30	BH1-1/B1/I1 ES 0.15-0.20 m 0.15 m PID = 3.3 ppm			-	FILL: SAND, fine to medium grained, yellow, with some brick fragments to 40 mm, no odour.			FILL
				35.90	BH1-2 ES 0.50-0.60 m 0.50 m PID = 0.1 ppm			-	FILL: Sandy GRAVEL, coarse, angular, red, medium to coarse grained sand, no odour.			
			1	1.00	BH1-3 ES 1.00-1.10 m 1.00 m PID = 0.1 ppm				from 1m with some high plasticity clay, grey, no odour.			
				35.20	BH1-4 ES 1.50-1.60 m 1.50 m PID = 0.1 ppm							
		16/07/14	2	2.00								
AD/T	-	GWNE		34.20	BH1-5 ES 2.50-2.60 m 2.50 m PID = 0 ppm			CI	Sandy CLAY, medium plasticity, red brown, fine to medium grained sand, with some fine to medium angular ironstone gravel, no odour.	M	-	RESIDUAL SOIL
			3	3.20	BH1-6 ES 2.90-3.00 m 2.90 m PID = 0 ppm							
				33.00	BH1-7 ES 3.40-3.45 m 3.40 m PID = 0 ppm			CI	Silty CLAY, medium plasticity, grey, trace fine ironstone gravel, inferred extremely weathered SHALE, no odour.			WEATHERED ROCK
			4	3.90								
				32.30				-	SHALE, grey, inferred distinctly weathered, inferred very low strength, no odour.	-		ROCK
			5	5.60								
									Continued as Cored Borehole			
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

EIA LIB 1.03.GLB Log IS AU BOREHOLE 3 E22232 - EDIT FOR ENVIRO.GPJ <<DrawingFile>> 05/08/2014 10:55 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: EIA 1.03 2014-07-05 Prj: EIA 1.03 2014-07-05

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Contamination | Remediation | Geotechnical

BOREHOLE: BH1/MW1

Project	New Residential Development	East	326132.9 m		
Location	165 Milton Street, Ashbury	North	6247699.6 m MGA94 Zone 56	Sheet	2 OF 3
Position	Refer to Figure 2	Surface RL	36.20 m AHD	Date Started	26/6/14
Job No.	E22232	Contractor	MACDRILL	Date Completed	26/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	E50	Logged AM	Date:
		Inclination	-90°	Checked RP	Date:

Drilling						Field Material Description				Defect Information	
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $Is_{(50)}$ MPa (EL 0.03, VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT DESCRIPTION & Additional Observations	AVERAGE DEFECT SPACING (mm) (10, 30, 100, 300, 1000, 3000)
				0							
				1							
				2							
				3							
				4							
				5							
					5.60		Continuation from non-cored borehole				
NMLC	GWNO	87	13 (26)	6	30.60		LAMINITE, comprising SILTSTONE (70%), bedding dipping 10 degrees, 1-3 mm thick, dark grey, SANDSTONE (30%), fine grained, bedding dipping 0 degrees, 1 mm thick, pale grey (ASHFIELD SHALE)	DW		5.60-7.50: BP*26 0 - 10° PR S Fe SN Average spacing = 60 mm 5.96-6.12: JT 80° UN RF Fe SN 6.23: JT 45° UN RF Fe SN 6.40: JT 50° PR S Fe SN 6.61: JT 45° PR S Fe SN 7.01: JT 80° ST S CN 7.20-7.30: DB core recovered as fragmented rock 7.37-7.50: DB core recovered as fragmented rock	
				7	*7.50*						
					28.70		CORELESS				
					7.90						
		100	44 (95)	8	28.30		LAMINITE, comprising SILTSTONE (70%), bedding dipping 10 degrees, 1-3 mm thick, dark grey, SANDSTONE (30%), fine grained, bedding dipping 0 degrees, 1 mm thick, pale grey (ASHFIELD SHALE)	SW - FR		7.90-9.15: BP 0 - 10° PR S CN Average spacing = 90 mm	
		100	88 (90)	9						9.47-10.24: BP 0 - 10° PR S CN Average spacing = 150 mm 9.51: DB	
				10							

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH1/MW1

Project	New Residential Development	East	326132.9 m		
Location	165 Milton Street, Ashbury	North	6247699.6 m MGA94 Zone 56	Sheet	3 OF 3
Position	Refer to Figure 2	Surface RL	36.20 m AHD	Date Started	26/6/14
Job No.	E22232	Contractor	MACDRILL	Date Completed	26/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	E50	Logged AM	Date:
		Inclination	-90°	Checked RP	Date:

Drilling						Field Material Description				Defect Information	
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $Is_{(50)}$ MPa (EL 0.03, VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT DESCRIPTION & Additional Observations	AVERAGE DEFECT SPACING (mm) (10, 30, 100, 300, 1000, 3000)
NMLC	GWNO	100	88 (90)	10			LAMINITE, comprising SILTSTONE (70%), bedding dipping 10 degrees, 1-3 mm thick, dark grey, SANDSTONE (30%), fine grained, bedding dipping 0 degrees, 1 mm thick, pale grey (ASHFIELD SHALE)	SW - FR		10.30: JT 45° PR RF CN 10.53-11.10: BP 0° PR S CN Average spacing = 200 mm 10.58: JT 35° PR S CN	
				11	*11.25* 24.95					11.11: JT 70° PR RF CN	
							Hole Terminated at 11.25 m Borehole converted to monitoring well.				
				12							
				13							
				14							
				15							
				16							
				17							
				18							
				19							
				20							

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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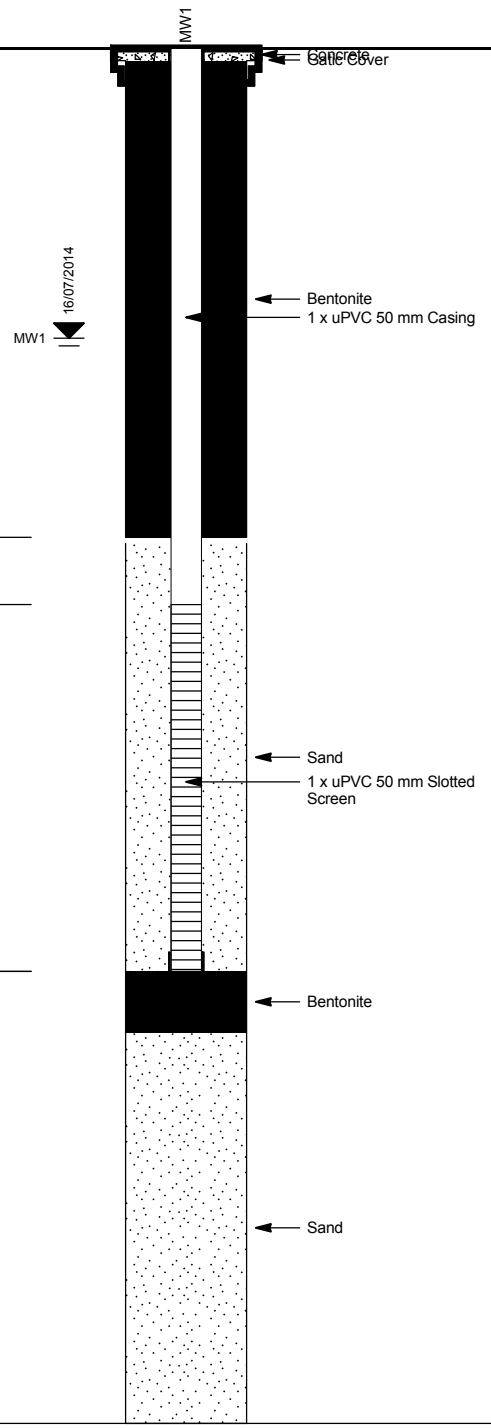
Hole ID
BH1/MW1

CLIENT	: Ashbury Developments Pty Ltd	POSITION	: Refer to Figure 2	SHEET	: 1 OF 1
CONTRACTOR	: MACDRILL	EASTING	: 326132.9 m	STATUS	:
PROJECT	: New Residential Development	NORTHING	: 6247699.6 m	LOGGED BY	: AM
LOCATION	: 165 Milton Street, Ashbury	COORD. SYS.	: MGA94 Zone 56	DRILL DATE	: 26/06/2014
PROJECT No.	: E22232	GROUND RL	: 36.20 m AHD		

Method	Drilling Water	Depth (m)	Elevation (m AHD)	Graphic Log	Soil / Rock Description
HADT			36		FILL: Concrete 150 mm, with medium angular aggregate.
					Fill: SAND, fine to medium grained, yellow, with some brick fragments to 40 mm, no odour.
					FILL: Sandy GRAVEL, coarse, angular, red, medium to coarse grained sand, no odour.
					from 1m with some high plasticity clay, grey, no odour.
		2	34		Sandy CLAY, medium plasticity, red brown, fine to medium grained sand, with some fine to medium angular ironstone gravel, no odour.
AD/T	GWNE				Silty CLAY, medium plasticity, grey, trace fine ironstone gravel, inferred extremely weathered SHALE, no odour.
		4	32		SHALE, grey, inferred distinctly weathered, inferred very low strength, no odour.
		6	30		LAMINITE, comprising SILTSTONE (70%), bedding dipping 10 degrees, 1-3 mm thick, dark grey, SANDSTONE (30%), fine grained, bedding dipping 0 degrees, 1 mm thick, pale grey (ASHFIELD SHALE), no odour.
					CORELESS
NMLC	GWNO	8	28		LAMINITE, comprising SILTSTONE (70%), bedding dipping 10 degrees, 1-3 mm thick, dark grey, SANDSTONE (30%), fine grained, bedding dipping 0 degrees, 1 mm thick, pale grey (ASHFIELD SHALE), no odour.
		10	26		
		12	24		Hole Terminated at 11.25 m Borehole converted to monitoring well.

PIEZOMETER CONSTRUCTION DETAILS

ID	Type	Stick Up & RL	Tip Depth & RL	Installation Date	Static Water Level
MW1	Standpipe		7.55 m 28.65 m	26/06/2014	



RIG	:	CHECKED BY	: RP
INCLINATION	:	CHECKED DATE	:
AZIMUTH	:	APPROVED BY	:
HOLE DIA.	:	APPROVED DATE	:

REMARK
Borehole converted to monitoring well.

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Form Number: DGM03 RL

Environmental Investigations Australia
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BOREHOLE: BH2/MW2

Project	New Residential Development	East	326093.5 m		
Location	165 Milton Street, Ashbury	North	6247671.7 m MGA94 Zone 56	Sheet	1 OF 1
Position	Refer to Figure 2	Surface RL	36.44 m AHD	Date Started	24/6/14
Job No.	E22232	Contractor	HARTGEO	Date Completed	24/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	Ute-mounted	Logged ES/CY	Date:
		Inclination	-90°	Checked RP	Date:

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	*0.17*				-	FILL: CONCRETE 170 mm.	-		CONCRETE HARDSTAND
HA				36.27	BH2-1 ES 0.18-0.28 m 0.18 m PID = 5 ppm BH2-2 ES 0.50-0.70 m 0.50 m PID = 16.4 ppm			-	FILL: SAND, fine to medium grained, dark brown, no odour.	M		FILL
			1	*1.00* 35.44				CI-CH	CLAY, medium to high plasticity, orange brown, inferred very stiff, no odour.			RESIDUAL SOIL
			2		BH2-3 ES 1.40-1.50 m 1.40 m PID = 24 ppm							
				2.50 33.94				-	SHALE, grey-orange/brown, inferred extremely weathered, no odour.			WEATHERED ROCK
AD/T	-	GWNE	3									
			4		BH2-4 ES 3.80-3.90 m 3.80 m PID = 900 ppm					D	-	
		16/07/14	5									
			6									
			7									
			8	*8.00*					Hole Terminated at 8.00 m Borehole converted to monitoring well.			
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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Environmental Investigations Australia
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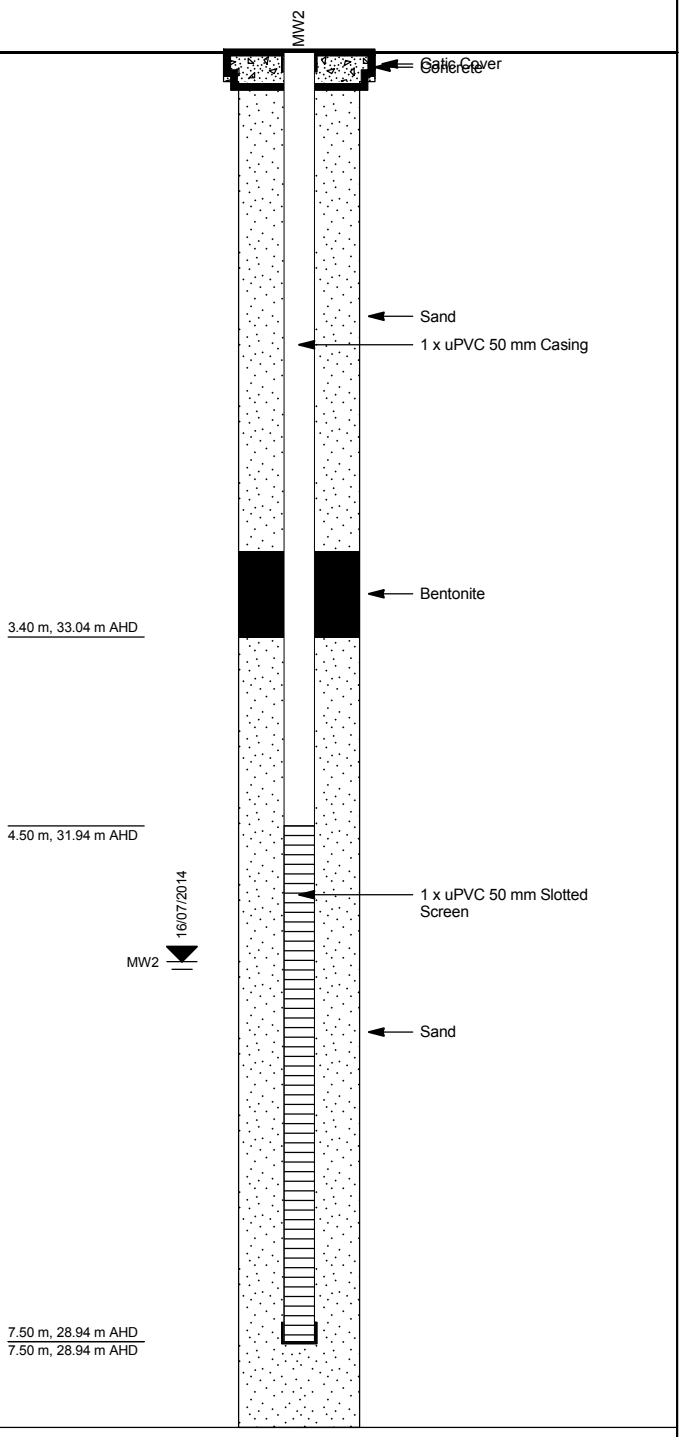
Hole ID
BH2/MW2

CLIENT	: Ashbury Developments Pty Ltd	POSITION	: Refer to Figure 2	SHEET	: 1 OF 1
CONTRACTOR	: HARTGEO	EASTING	: 326093.5 m	STATUS	:
PROJECT	: New Residential Development	NORTHING	: 6247671.7 m	LOGGED BY	: ES/CY
LOCATION	: 165 Milton Street, Ashbury	COORD. SYS.	: MGA94 Zone 56	DRILL DATE	: 24/06/2014
PROJECT No.	: E22232	GROUND RL	: 36.44 m AHD		

Method	Drilling Water	Depth (m)	Elevation (m AHD)	Graphic Log	Soil / Rock Description
DT	GWNE	0	36		FILL: CONCRETE 170 mm.
HA					FILL: SAND, fine to medium grained, dark brown, no odour.
AD/T		1	35		CLAY, medium to high plasticity, orange brown, inferred very stiff, no odour.
		2	34		SHALE, grey-orange/brown, inferred extremely weathered, no odour.
		3	33		
		4	32		
		5	31		
		6	30		
		7	29		
		8	28		Hole Terminated at 8.00 m Borehole converted to monitoring well.

PIEZOMETER CONSTRUCTION DETAILS

ID	Type	Stick Up & RL	Tip Depth & RL	Installation Date	Static Water Level
MW2	Standpipe		7.50 m 28.94 m	24/06/2014	



RIG	:	CHECKED BY	: RP
INCLINATION	:	CHECKED DATE	:
AZIMUTH	:	APPROVED BY	:
HOLE DIA.	:	APPROVED DATE	:

REMARK
Borehole converted to monitoring well.

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Form Number: DGM03 RL

BOREHOLE: BH3/MW3

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Project	New Residential Development	East	326140.1 m		
Location	165 Milton Street, Ashbury	North	6247603.1 m MGA94 Zone 56	Sheet	1 OF 1
Position	Refer to Figure 2	Surface RL	37.40 m AHD	Date Started	24/6/14
Job No.	E22232	Contractor	HARTGEO	Date Completed	24/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	Ute-mounted	Logged ES/CY	Date:
		Inclination	-90°	Checked RP	Date:

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	37.40				-	FILL: CONCRETE 300 mm.	-		CONCRETE HARDSTAND
				0.30								
				37.10	BH3-1 ES 0.30-0.50 m 0.30 m PID = 5.2 ppm			-	FILL: SAND, fine to medium grained, brown/orange/red, trace of gravel, fine to medium grained, no odour.			FILL
			1	*1.20*								
				36.20	BH3-2 ES 1.20-1.30 m 1.20 m PID = 295 ppm			-	FILL: CLAY, dark grey/red, medium to high plasticity, no odour.	D		
					BH3-3 ES 1.80-1.90 m 1.80 m PID = 554 ppm							
			2	*2.40*								
				35.00	BH3-4 ES 2.40-2.50 m 2.40 m PID = 63.8 ppm			CI-CH	CLAY, dark brown, medium to high plasticity, inferred very stiff, with red ironstone, no odour.	M		RESIDUAL SOIL
		16/07/14	3	*3.40*								
				34.00				-	SHALE, grey, inferred extremely to distinctly weathered, no odour.			ROCK
AD/T	-	GWNE	4		BH3-5 ES 4.00-4.10 m 4.00 m PID = 9.6 ppm					D	-	
			5									
			6									
			7									
				8.00								
			8						Hole Terminated at 8.00 m Borehole converted to monitoring well.			
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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Environmental Investigations Australia
Contamination | Remediation | Geotechnical

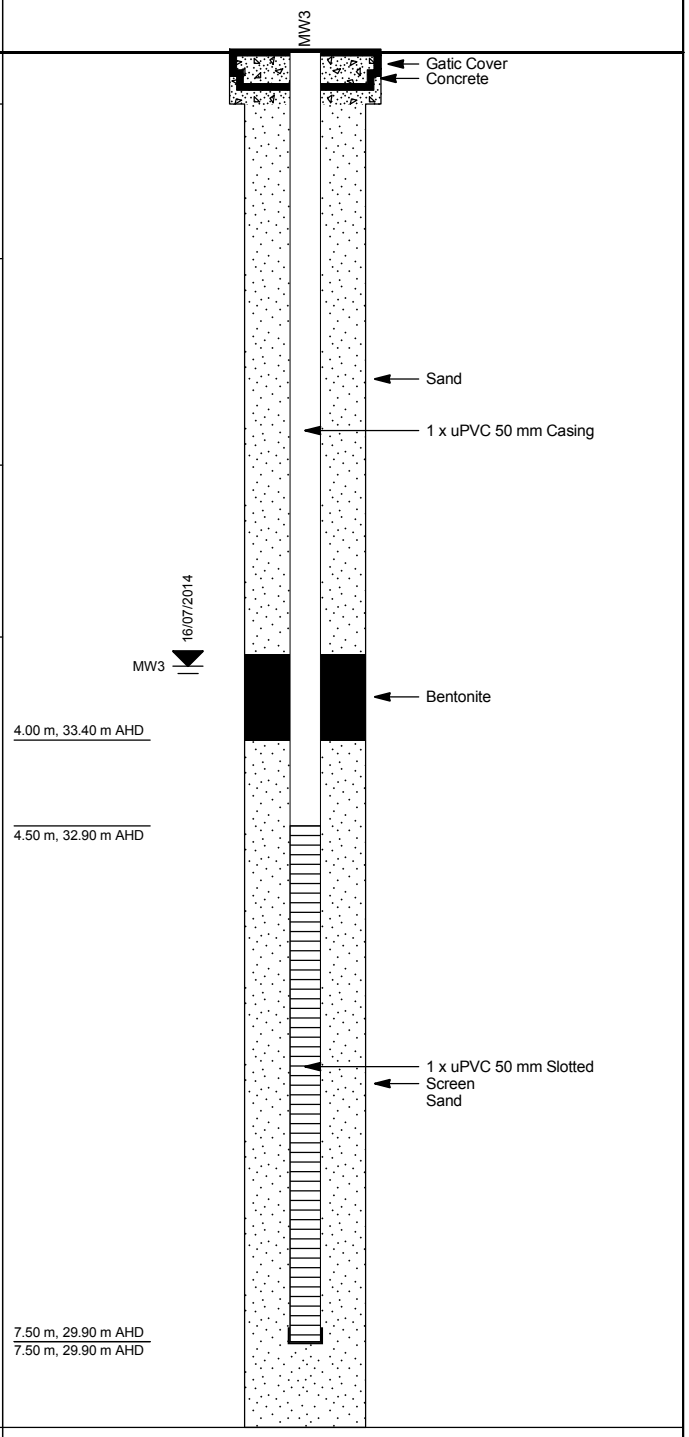
Hole ID
BH3/MW3

CLIENT	: Ashbury Developments Pty Ltd	POSITION	: Refer to Figure 2	SHEET	: 1 OF 1
CONTRACTOR	: HARTGEO	EASTING	: 326140.1 m	STATUS	:
PROJECT	: New Residential Development	NORTHING	: 6247603.1 m	LOGGED BY	: ES/CY
LOCATION	: 165 Milton Street, Ashbury	COORD. SYS.	: MGA94 Zone 56	DRILL DATE	: 24/06/2014
PROJECT No.	: E22232	GROUND RL	: 37.40 m AHD		

Method	Drilling Water	Depth (m)	Elevation (m AHD)	Graphic Log	Soil / Rock Description
DT					FILL: CONCRETE 300 mm.
AD/T	GWNE	1	37		FILL: SAND, fine to medium grained, brown/orange/red, trace of gravel, fine to medium grained, no odour.
		2	36		FILL: CLAY, dark grey/red, medium to high plasticity, no odour.
		3	35		CLAY, dark brown, medium to high plasticity, inferred very stiff, with red ironstone, no odour.
		4	34		SHALE, grey, inferred extremely to distinctly weathered, no odour.
		5	33		
		6	32		
		7	31		
		8	30		
			29		Hole Terminated at 8.00 m Borehole converted to monitoring well.

PIEZOMETER CONSTRUCTION DETAILS

ID	Type	Stick Up & RL	Tip Depth & RL	Installation Date	Static Water Level
MW3	Standpipe		7.50 m 29.90 m	24/06/2014	



RIG	:	CHECKED BY	: RP
INCLINATION	:	CHECKED DATE	:
AZIMUTH	:	APPROVED BY	:
HOLE DIA.	:	APPROVED DATE	:

REMARK
Borehole converted to monitoring well.

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Form Number: DGM03 RL

BOREHOLE: BH4/MW4

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Project	New Residential Development	East	326087.3 m		
Location	165 Milton Street, Ashbury	North	6247630.3 m MGA94 Zone 56	Sheet	1 OF 1
Position	Refer to Figure 2	Surface RL	36.04 m AHD	Date Started	7/7/14
Job No.	E22232	Contractor	HARTGEO	Date Completed	7/7/14
Client	Ashbury Developments Pty Ltd	Drill Rig	Ute-mounted	Logged DS	Date:
		Inclination	-90°	Checked RP	Date:

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	36.04				-	FILL: CONCRETE 300 mm.	-		CONCRETE HARDSTAND
				0.30								
				35.74	BH4-1 ES 0.40-0.50 m			-	FILL: Silty SAND, fine to medium grained, brown-dark brown, no odour.			FILL
			1									
			2		BH4-2 ES 2.40-2.50 m							
				2.70								
				33.34				CI	Sandy CLAY, medium plasticity, brown-dark brown, inferred very stiff, sand is fine grained, trace of fine rounded gravel, no odour.	M		RESIDUAL SOIL
			3		BH4-3 ES 3.20-3.30 m							
AD/T	-	GWNE	4								-	
			5									
				5.50								
				30.54				-	SHALE, grey, inferred extremely weathered, no odour.			WEATHERED ROCK
			6							-		
				7.00								
			7	29.04					from 7m inferred distinctly weathered.			ROCK
					BH4-4 ES 7.70-7.80 m							
				8.00								
			8						Hole Terminated at 8.00 m Borehole converted to monitoring well.			
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

EIA LIB 1.03.GLB Log IS AU BOREHOLE 3 E22232 - EDIT FOR ENVIRO.GPJ <<DrawingFile>> 05/08/2014 10:56 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: EIA 1.03 2014-07-05 Prj: EIA 1.03 2014-07-05

Environmental Investigations Australia
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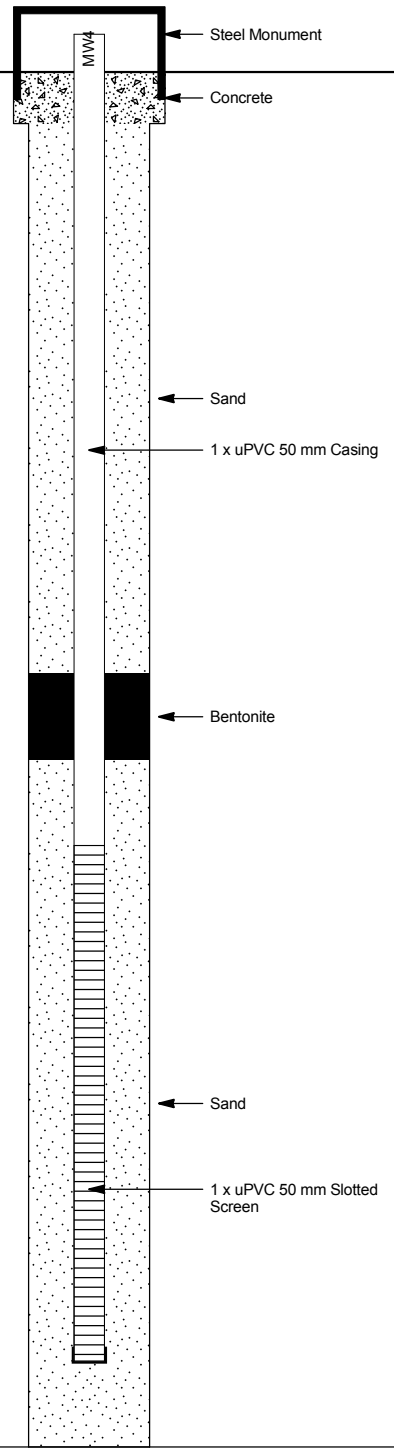
Hole ID
BH4/MW4

CLIENT	: Ashbury Developments Pty Ltd	POSITION	: Refer to Figure 2	SHEET	: 1 OF 1
CONTRACTOR	: HARTGEO	EASTING	: 326087.3 m	STATUS	:
PROJECT	: New Residential Development	NORTHING	: 6247630.3 m	LOGGED BY	: DS
LOCATION	: 165 Milton Street, Ashbury	COORD. SYS.	: MGA94 Zone 56	DRILL DATE	: 07/07/2014
PROJECT No.	: E22232	GROUND RL	: 36.04 m AHD		

Method	Drilling Water	Depth (m)	Elevation (m AHD)	Graphic Log	Soil / Rock Description
		0	36		
DT					FILL: CONCRETE 300 mm.
AD/T	GWNE				FILL: Silty SAND, fine to medium grained, brown-dark brown, no odour.
		1	35		
		2	34		
		3	33		Sandy CLAY, medium plasticity, brown-dark brown, inferred very stiff, sand is fine grained, trace of fine rounded gravel, no odour.
		4	32		
		5	31		
		6	30		SHALE, grey, inferred extremely weathered, no odour.
		7	29		from 7m inferred distinctly weathered.
		8	28		Hole Terminated at 8.00 m Borehole converted to monitoring well.

PIEZOMETER CONSTRUCTION DETAILS

ID	Type	Stick Up & RL	Tip Depth & RL	Installation Date	Static Water Level
MW4	Standpipe		7.50 m 28.54 m	07/07/2014	



RIG	:	CHECKED BY	: RP
INCLINATION	:	CHECKED DATE	:
AZIMUTH	:	APPROVED BY	:
HOLE DIA.	:	APPROVED DATE	:

REMARK
Borehole converted to monitoring well.

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Form Number: DGM03 RL

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

BOREHOLE: BH5/MW5

Project	New Residential Development	East	326187.0 m		
Location	165 Milton Street, Ashbury	North	6247712.2 m MGA94 Zone 56	Sheet	1 OF 3
Position	Refer to Figure 2	Surface RL	41.00 m AHD	Date Started	27/6/14
Job No.	E22232	Contractor	MACDRILL	Date Completed	26/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	E50	Logged AM	Date:
		Inclination	-90°	Checked RP	Date:

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
AD/T	-	16/07/2014 DRY	0	41.00	BH5-1 ES 0.00-0.10 m 0.00 m PID = 0.1 ppm			-	FILL: Silty SAND/ Sandy SILT, fine grained, low plasticity, dark brown, with trace rootlets, no odour.			FILL
				0.40								
				40.60	BH5-2 ES 0.40-0.50 m 0.40 m PID = 0 ppm BH5-SPT1			-	FILL: Sandy GRAVEL, coarse, subangular, grey brown, sand is medium grained, no odour.			
			1		BH5-3 ES 1.00-1.10 m 1.00 m PID = 0 ppm					M		
				1.50								
				39.50	BH5-SPT2 BH5-4 ES 1.60-1.70 m 1.60 m PID = 0.1 ppm BH5-5 ES 1.80-1.90 m 1.80 m PID = 0 ppm			CH	Silty CLAY, high plasticity, red grey, with some fine to medium angular ironstone gravel, no odour.			RESIDUAL SOIL
			2	*2.20*								
				38.80				-	SHALE, grey, inferred distictly weathered, inferred very low strength with some ironstaining, no odour.			ROCK
			3								-	
			4							-		
			5									
				5.60								
			6						Continued as Cored Borehole			
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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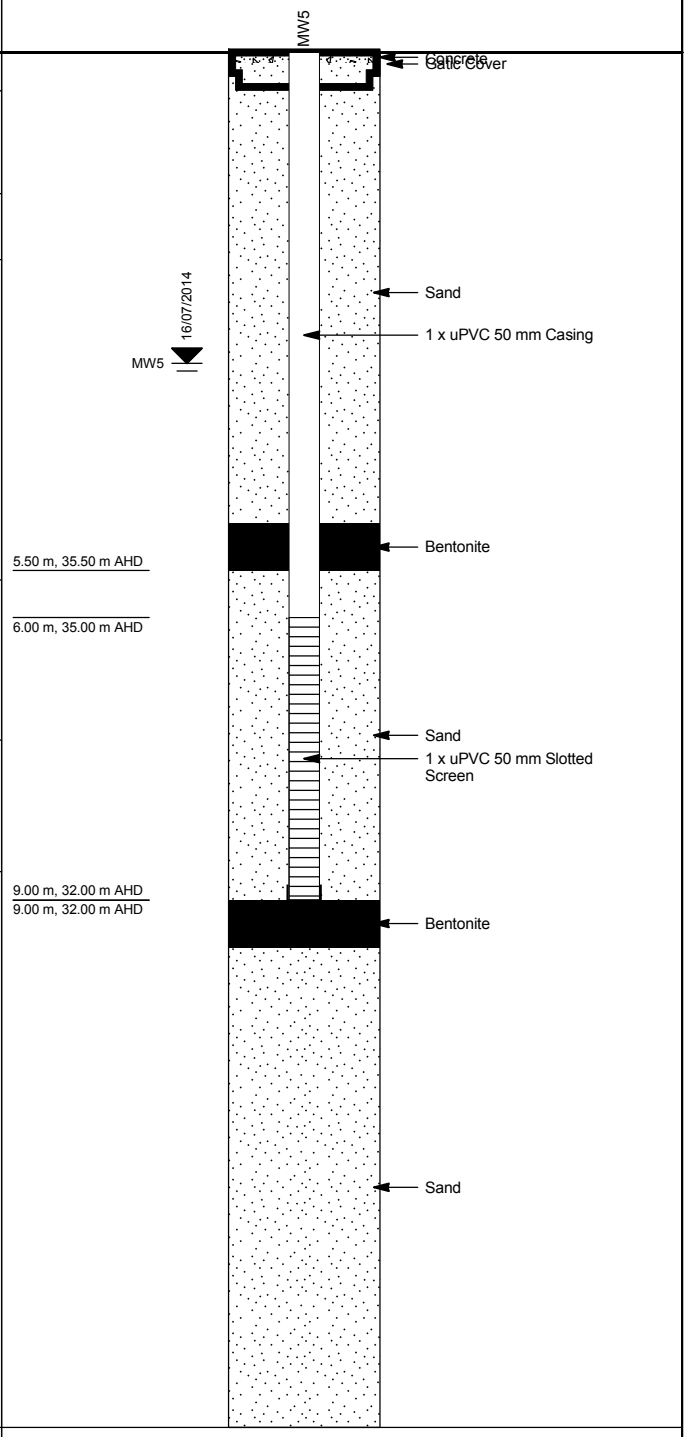
Hole ID
BH5/MW5

CLIENT	: Ashbury Developments Pty Ltd	POSITION	: Refer to Figure 2	SHEET	: 1 OF 1
CONTRACTOR	: MACDRILL	EASTING	: 326187.0 m	STATUS	:
PROJECT	: New Residential Development	NORTHING	: 6247712.2 m	LOGGED BY	: AM
LOCATION	: 165 Milton Street, Ashbury	COORD. SYS.	: MGA94 Zone 56	DRILL DATE	: 27/06/2014 - 26/06/2014
PROJECT No.	: E22232	GROUND RL	: 41.00 m AHD		

Method	Drilling Water	Depth (m)	Elevation (m AHD)	Graphic Log	Soil / Rock Description
AD/T	GWNE	0	40		FILL: Silty SAND/ Sandy SILT, fine grained, low plasticity, dark brown, with trace rootlets, no odour.
					FILL: Sandy GRAVEL, coarse, subangular, grey brown, sand is medium grained, no odour.
		2			Silty CLAY, high plasticity, red grey, with some fine to medium angular ironstone gravel, no odour.
			38		SHALE, grey, inferred distictly weathered, inferred very low strength with some ironstaining, no odour.
		4			
			36		
NMLC	GWNO	6			CORELOSS
			34		
		8			LAMINITE, comprising SILTSTONE (70%), bedding dipping 10 degrees, 1-3 mm thick, dark grey, SANDSTONE (30%), fine grained, bedding dipping 0 degrees, 1 mm thick, pale grey (ASHFIELD SHALE), no odour.
			32		LAMINITE, comprising SILTSTONE (70%), bedding dipping 10 degrees, 1-3 mm thick, dark grey, SANDSTONE (30%), fine grained, bedding dipping 0 degrees, 1 mm thick, pale grey (ASHFIELD SHALE), no odour.
		10			
			30		
		12			
			28		
		14			from 14.3 m core not recovered
			26		Hole Terminated at 14.60 m Borehole converted to monitoring well.

PIEZOMETER CONSTRUCTION DETAILS

ID	Type	Stick Up & RL	Tip Depth & RL	Installation Date	Static Water Level
MW5	Standpipe		9.00 m 32.00 m	27/06/2014	



RIG	:	CHECKED BY	: RP	REMARK	
INCLINATION	:	CHECKED DATE	:	Borehole converted to monitoring well.	
AZIMUTH	:	APPROVED BY	:		
HOLE DIA.	:	APPROVED DATE	:		

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Form Number: DGM03 RL

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BOREHOLE: BH5/MW5

Project	New Residential Development	East	326187.0 m		
Location	165 Milton Street, Ashbury	North	6247712.2 m MGA94 Zone 56	Sheet	2 OF 3
Position	Refer to Figure 2	Surface RL	41.00 m AHD	Date Started	27/6/14
Job No.	E22232	Contractor	MACDRILL	Date Completed	26/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	E50	Logged AM	Date:
		Inclination	-90°	Checked RP	Date:

Drilling						Field Material Description				Defect Information	
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $Is_{(50)}$ MPa (EL 0.03, VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT DESCRIPTION & Additional Observations	AVERAGE DEFECT SPACING (mm) (10, 30, 100, 300, 1000, 3000)
				0							
				1							
				2							
				3							
				4							
				5							
					5.60		Continuation from non-cored borehole				
NMLC	GWNO				35.40		CORELOSS				
		43	3 (5)	6							
				7	*7.30*						
					33.70		LAMINITE, comprising SILTSTONE (70%), bedding dipping 10 degrees, 1-3 mm thick, dark grey, SANDSTONE (30%), fine grained, bedding dipping 0 degrees, 1 mm thick, pale grey (ASHFIELD SHALE)	DW		7.30-7.68: BP 5 - 10° PR RF Fe SN 7.60-7.68: DB core recovered as fragmented rock 7.79-8.40: BP 0° PR RF Fe SN 7.83: JT 40° PR S CN 7.92: JT 40° PR RF CN 8.04: JT 40° UN RF CN 8.22-8.40: DB core recovered as fragmented rock	
				8				XW		8.55-8.70: DB core recovered as fragmented rock 8.70-9.50: BP 0° PR RF CN average spacing = 250 mm 8.74-8.90: JT 45° PR RF Fe SN 8.86: JT 40° ST S CN	
		100	58 (61)	9				SW		9.15-9.19: CZ 40 mm medium angular gravel 9.41: JT 30° PR S CN 9.47-9.52: CZ 50 mm medium angular gravel	
				10						9.84: JT 15° PR RF CN	

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH5/MW5

Project	New Residential Development	East	326187.0 m		
Location	165 Milton Street, Ashbury	North	6247712.2 m MGA94 Zone 56	Sheet	3 OF 3
Position	Refer to Figure 2	Surface RL	41.00 m AHD	Date Started	27/6/14
Job No.	E22232	Contractor	MACDRILL	Date Completed	26/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	E50	Logged AM	Date:
		Inclination	-90°	Checked RP	Date:

Drilling						Field Material Description				Defect Information	
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $Is_{(50)}$ MPa (EL 0.03, VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT DESCRIPTION & Additional Observations	AVERAGE DEFECT SPACING (mm) (10, 30, 100, 300, 1000, 3000)
NMLC	GWNO	100	58 (61)	10			LAMINITE, comprising SILTSTONE (70%), bedding dipping 10 degrees, 1-3 mm thick, dark grey, SANDSTONE (30%), fine grained, bedding dipping 0 degrees, 1 mm thick, pale grey (ASHFIELD SHALE)	SW			
								XW		10.20-10.68: DZ broken while recovering	
				11				SW - FR		10.82-10.87: CZ 50 mm medium angular gravel	
										11.12: BP 0° PR S CN	
										11.34: BP 0° PR S CN 11.38: BP 0° PR S CN 11.41: BP 0° PR S CN 11.68-12.58: BP 0° PR S CN average spacing = 130 mm	
				12							
		90	85 (87)	13						12.87-14.03: BP 0° PR S CN average spacing = 300 mm	
				14	*14.30*						
					26.70		from 14.3 m core not recovered				
					14.60						
					26.40		Hole Terminated at 14.60 m Borehole converted to monitoring well.				
				15							
				16							
				17							
				18							
				19							
				20							

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BOREHOLE: BH6

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Project	New Residential Development	East	326194.6 m		
Location	165 Milton Street, Ashbury	North	6247688.4 m MGA94 Zone 56	Sheet	1 OF 1
Position	Refer to Figure 2	Surface RL	41.12 m AHD	Date Started	24/6/14
Job No.	E22232	Contractor	EI	Date Completed	24/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	HA	Logged ES/CY	Date:
		Inclination	-90°	Checked RP	Date:

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	-	GWNE	0	41.12 *0.20* 40.92 *0.60* 40.52	BH6-1 ES 0.00-0.20 m 0.10 m PID = 374 ppm BH6-2 ES 0.40-0.50 m 0.40 m PID = 343 ppm			-	FILL: SAND, fine to medium grained, brown, with grass rootlet, no odour. from 0.2 m, brown-red brown with fine to coarse gravel, no odour. from 0.6 m with medium to high plasticity clay , red-brown, no odour.	M D	-	FILL
			1	*1.50*	BH6-3 ES 1.10-1.20 m 1.10 m PID = 53 ppm BH6-4 ES 1.40-1.50 m 1.40 m PID = 333 ppm				Hole Terminated at 1.50 m Backfilled with drilling spoil, concrete capped.			
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH7

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Project	New Residential Development	East	326088.1 m		
Location	165 Milton Street, Ashbury	North	6247571.6 m MGA94 Zone 56	Sheet	1 OF 1
Position	Refer to Figure 2	Surface RL	34.73 m AHD	Date Started	24/6/14
Job No.	E22232	Contractor	EI	Date Completed	24/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	HA	Logged ES/CY	Date:
		Inclination	-90°	Checked RP	Date:

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA DT	-	GWNE	0	0.10 34.63 0.50	BH7-1 ES 0.10-0.20 m 0.10 m PID = 1.5 ppm BH7-2 ES 0.40-0.50 m 0.50 m PID = 3.2 ppm			-	FILL: ASPHALT 100 mm.	-		
								-	FILL: CLAY, medium to high plasticity, grey-brown to red-orange, with some gravel, medium to coarse grained (inferred reworked natural), no odour.	D	-	FILL
									Hole Terminated at 0.50 m Backfilled with drilling spoil, concrete capped.			
			1									
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

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BOREHOLE: BH8

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Project	New Residential Development	East	326108.3 m		
Location	165 Milton Street, Ashbury	North	6247602.1 m MGA94 Zone 56	Sheet	1 OF 1
Position	Refer to Figure 2	Surface RL	37.41 m AHD	Date Started	24/6/14
Job No.	E22232	Contractor	EI	Date Completed	24/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	HA	Logged ES/CY	Date:
		Inclination	-90°	Checked RP	Date:

Drilling					Sampling		Field Material Description				
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	-	GWNE	0	0.15 37.26	BH8-1 ES 0.20-0.30 m 0.20 m PID = 5 ppm			-	FILL: ASHPHALT 50 mm.	-		FILL
								-	FILL: GRAVEL, medium to coarse grained, no odour.			
				0.60 0.70	BH8-2 ES 0.50-0.60 m 0.50 m PID = 25.6 ppm				FILL: Gravelly CLAY, black-grey, medium to high plasticity, no odour.	M	-	
			1		BH8-3 ES 0.60-0.70 m 0.60 m PID = 13.6 ppm				FILL: Gravelly Silty CLAY, medium to high plasticity, black-brown, gravel is medium to coarse grained, no odour.			
									Hole Terminated at 0.70 m Backfilled with drilling spoil, concrete capped.			
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH9

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Project	New Residential Development	East	326180.8 m		
Location	165 Milton Street, Ashbury	North	6247601.9 m MGA94 Zone 56	Sheet	1 OF 1
Position	Refer to Figure 2	Surface RL	37.20 m AHD	Date Started	24/6/14
Job No.	E22232	Contractor	HARTGEO	Date Completed	24/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	Ute-mounted	Logged DH	Date:
		Inclination	-90°	Checked RP	Date:

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	37.20				-	FILL: CONCRETE 200 mm.	-		CONCRETE HARDSTAND
				0.20								
				0.30				-	FILL: SAND, fine to medium grained, orange-grey, with some clay and silt, no odour.			FILL
				36.90	BH9-1 ES 0.30-0.40 m			CI-CH	CLAY: medium to high plasticity, grey-red, inferred very stiff, no odour.	M		RESIDUAL SOIL
				0.70	0.30 m				from 0.7 m became grey-red.			
				36.50	PID = 1.9 ppm							
				0.90	BH9-2 ES 0.40-0.50 m							
AD/T	-	GWNE	1	36.30	0.40 m			-	SILTSTONE, fine to medium grained, orange-grey, inferred exteremely weathered, no odour.	D	-	WEATHERED ROCK
					PID = 9.1 ppm							
					BH9-3 ES 0.90-1.00 m							
					0.90 m							
					PID = 56.4 ppm							
			2	*2.00*					Hole Terminated at 2.00 m Backfilled with drilling spoil, concrete capped.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

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BOREHOLE: BH10

Project	New Residential Development	East	326125.1 m		
Location	165 Milton Street, Ashbury	North	6247637.7 m MGA94 Zone 56	Sheet	1 OF 1
Position	Refer to Figure 2	Surface RL	37.30 m AHD	Date Started	25/6/14
Job No.	E22232	Contractor	HARTGEO	Date Completed	25/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	HA	Logged ES	Date:
		Inclination	-90°	Checked RP	Date:

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	37.30				-	FILL: CONCRETE 400 mm.	-		CONCRETE HARDSTAND
				0.40								
HA	-	GWNE		36.90	BH10-1 ES 0.40-0.50 m 0.40 m PID = 0.9 ppm			-	FILL: SAND, fine to medium grained, yellow-brown, no odour.	D		FILL
				0.70								
				36.60	BH10-2 ES 0.80-0.90 m 0.80 m PID = 0.3 ppm				FILL: CLAY, medium to high plasticity, orange/brown-red-grey, no odour.		-	
			1									
					BH10-3 ES 1.90-2.00 m					M		
			2	*2.50*								
				34.80	BH10-4 ES 2.50-2.60 m 2.50 m PID = 0.2 ppm				CLAY, medium to high plasticity, red grey, inferred very stiff, no odour.			RESIDUAL SOIL
			3	*3.20*								
									Hole Terminated at 3.20 m Backfilled with drilling spoil, concrete capped.			
			4									
			5									
			6									
			7									
			8									
			9									
			10									

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BOREHOLE: BH11

Environmental Investigations Australia
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Project	New Residential Development	East	326160.4 m		
Location	165 Milton Street, Ashbury	North	6247644.8 m MGA94 Zone 56	Sheet	1 OF 1
Position	Refer to Figure 2	Surface RL	37.20 m AHD	Date Started	25/6/14
Job No.	E22232	Contractor	HARTGEO	Date Completed	25/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	Ute-mounted	Logged DH	Date:
		Inclination	-90°	Checked RP	Date:

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	37.20				-	FILL: CONCRETE 280 mm.	-		CONCRETE HARDSTAND
				0.28								
				0.45	BH11-1 ES			-	FILL: SAND, fine to medium grained, orange-grey, with some clay and silt, no odour.	M		FILL
				0.60	0.30-0.50 m							RESIDUAL SOIL
				36.60	0.30 m			CI-CH	CLAY, medium to high plasticity, grey-red, inferred very stiff, no odour.			WEATHERED ROCK
AD/T	-	GWNE			PID = 0.7 ppm BH11-2 ES 0.50-0.60 m 0.50 m PID = 1.3 ppm BH11-3 ES 0.60-0.80 m 0.60 m PID = 0.1 ppm			-	SHALE, orange-grey, inferred exteremely weathered, no odour.	D	-	
			1									
				2.00								
			2						Hole Terminated at 2.00 m Backfilled with drilling spoil, concrete capped.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

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BOREHOLE: BH12

Project	New Residential Development	East	326147.9 m		
Location	165 Milton Street, Ashbury	North	6247676.4 m MGA94 Zone 56	Sheet	1 OF 1
Position	Refer to Figure 2	Surface RL	37.36 m AHD	Date Started	25/6/14
Job No.	E22232	Contractor	HARTGEO	Date Completed	25/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	HA	Logged ES	Date:
		Inclination	-90°	Checked RP	Date:

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	37.36 *0.20*				-	FILL: CONCRETE 200 mm.	-		CONCRETE HARDSTAND
AD/T	-	GWNE		37.16 *0.50*	BH12-1 ES 0.20-0.30 m 0.20 m PID = 0.1 ppm BH12-2 ES 0.60-0.70 m 0.60 m PID = 0.2 ppm			-	FILL: SAND, fine to medium grained, yellow-brown, no odour.	M	-	FILL
				36.86 *0.70*				CI-CH	CLAY, medium to high plasticity, red-grey, with ironstone gravel, no odour.			RESIDUAL SOIL
			1						Hole Terminated at 0.70 m Backfilled with drilling spoil, concrete capped.			
			2									
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

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BOREHOLE: BH13

Project	New Residential Development	East	326117.2 m		
Location	165 Milton Street, Ashbury	North	6247673.4 m MGA94 Zone 56	Sheet	1 OF 1
Position	Refer to Figure 2	Surface RL	37.30 m AHD	Date Started	24/6/14
Job No.	E22232	Contractor	HARTGEO	Date Completed	24/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	Ute-mounted	Logged DH	Date:
		Inclination	-90°	Checked RP	Date:

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
DT			0	37.30				-	FILL: CONCRETE 300 mm.	-		CONCRETE HARDSTAND
				0.30								
				0.40	BH13-1 ES			-	FILL: SAND, fine to medium grained, orange-brown, no odour.			FILL
				36.90	0.30-0.50 m				FILL: CLAY, medium to high plasticity, red-brown, with some gravel, no odour.			
					0.30 m							
					PID = 6.7 ppm							
			1		BH13-2 ES							
					0.50-0.70 m							
					0.50 m							
					PID = 0.3 ppm							
					BH13-3 ES					M		
					1.30-1.50 m							
AD/T	-	GWNE			BH13-4 ES						-	
			2	*2.10*	1.80-2.00 m							
				35.20				CI-CH	CLAY, medium to high plasticity, grey-red, no odour.			RESIDUAL SOIL
					BH13-5 ES							
				2.70	2.50-2.70 m							
				34.60	2.50 m			-	SILTSTONE, grey, inferred exteremely weathered, no odour.			WEATHERED ROCK
					PID = 0.6 ppm					D		
			3									
				4.00								
			4						Hole Terminated at 4.00 m Backfilled with drilling spoil, concrete capped.			
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

EIA LIB 1.03.GLB Log IS AU BOREHOLE 3 E22232 - EDIT FOR ENVIRO.GPJ <<DrawingFile>> 05/08/2014 10:57 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: EIA 1.03 2014-07-05 Prj: EIA 1.03 2014-07-05

BOREHOLE: BH14

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Project	New Residential Development	East	326115.2 m		
Location	165 Milton Street, Ashbury	North	6247567.9 m MGA94 Zone 56	Sheet	1 OF 1
Position	Refer to Figure 2	Surface RL	35.94 m AHD	Date Started	25/6/14
Job No.	E22232	Contractor	HARTGEO	Date Completed	25/6/14
Client	Ashbury Developments Pty Ltd	Drill Rig	HA	Logged DH	Date:
		Inclination	-90°	Checked RP	Date:

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
HA	-	GWNE	0	35.94	BH14-1 ES 0.00-0.10 m 0.00 m PID = 0 ppm			-	FILL: Gravelly CLAY, orange-brown, gravel is medium, with some silt, no odour.	M	-	FILL
			1									
				1.80								
				34.14	BH14-2 ES 1.80-1.90 m 1.80 m PID = 0 ppm			CI-CH	CLAY, medium to high plasticity, grey-red, no odour.			RESIDUAL SOIL
			2	*2.00*					Hole Terminated at 2.00 m Backfilled with drilling spoil, concrete capped.			
			3									
			4									
			5									
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

EIA LIB 1.03.GLB Log IS AU BOREHOLE 3 E22232 - EDIT FOR ENVIRO.GPJ <<DrawingFile>> 05/08/2014 10:57 8.30.004 Datgel Lab and In Situ Tool - DGD | Lib: EIA 1.03 2014-07-05 Prj: EIA 1.03 2014-07-05

APPENDIX G
Field Data Sheets

c22232 – 165 Milton St. Ashbury – 24+25/6/14 – ES/CY

⊕ – BH LOCATIONS.

– TO BE COMPLETED PM TUES/WED

WH WANGENER OVAL

D
D.P.307975

D.P.30778

(A)

CAR PARK

BRICK BUILDING
FLAT ROOF
No.149-163

VARIOUS WINDOWS VARIOUS WINDOWS VARIOUS WINDOWS
TOP 587 TOP 587 TOP 587
SILL 489 SILL 489 SILL 489
TOP 471 TOP 471 TOP 471
SILL 453 SILL 453 SILL 453
TOP 435 TOP 435 TOP 435
SILL 417 SILL 417 SILL 417

SUBSTATION

B.M. CUT IN KERB
SV R.L. 40.80 (A.H.D.)

71°22'30"
108.86
RETAINING WALL
DRIVEWAY
KERB
LINE
PARAPET
CONCRETE

345°07'
14.765

6°58'20"
72.605

60°21'
14.355

252°46'
46.63

252°46'
122.94

161°22'30"
86.855

BRICK OFFICE
FLAT ROOF
No.165-171

BRICK WAREHOUSE
METAL ROOF

WATER TANK
METAL SHED
RAMP
CONCRETE
BLOCK RETAINING WALL
DRIVEWAY
GRASS
BITUMEN
FENCE
GARDEN
PAVERS
STEPS
GAS
SHED
BRICK
33.53
251°22'30"
BRICK DWELLING
No.173

STORMWATER PIT
GRATE RL 41.28
Invert RL 40.01
Pipe Ø.23

STORMWATER PIT
GRATE RL 42.58
Invert RL 39.87
Pipe INACCESSIBLE

1. MW+GEO
2. MW
3. MW
Gatic replaced
4. MW+GEO
5. GEO+MW
6. GEO+MW
7. HA
8. HA
9. DCP
10. DCP
11. DCP
12. DCP
13. DCP
14. (1m2)
Asbestos
Frog

A
D.P.30778
(1.487ha)

B
D.P.309897
C
D.P.309897
D
D.P.309897
5
D.P.310344
4
D.P.310344
3
D.P.310344
2
D.P.310344
1
D.P.310344
42
D.P.10473

DWELLING No.175
DWELLING No.177
DWELLING No.179
DWELLING No.181
DWELLING No.183
DWELLING No.185
DWELLING No.187
DWELLING No.189
DWELLING No.191

3
D.P.307975
2
D.P.307975
1
D.P.307975

FIBRO SHED
BRICK SHED

DWELLING No.33
DWELLING No.31
DWELLING No.29
DWELLING No.27
DWELLING No.25
DWELLING No.23
DWELLING No.21
DWELLING No.19
DWELLING No.17

5 D.P.310180
4 D.P.310180
3 D.P.310180
2 D.P.310180
1 D.P.310180
37 D.P.10473

A D.P.358277
B D.P.358277
1 D.P.630978
2 D.P.630978
A D.P.394073
B D.P.394073

DWELLING No.15A
DWELLING No.15
DWELLING No.15B
DWELLING No.13
DWELLING No.11A
DWELLING No.11

TRUE NORTH

MILTON STREET

TREVENAR STREET

No	Diam	Spread	Height
1	0.4	4	5
2	0.5	8	6
3	0.4	4	5
4	0.4	8	6
5	0.2	3	8
6	0.2	3	8
7	0.2	3	8
8	0.2	4	6
9	0.2	4	6
10	0.4	4	6
11	0.2	3	6
12	0.3	3	6
13	0.3	3	6
14	0.3	3	6
15	0.3	3	6
16	0.3	3	6
17	0.3	3	6
18	0.4	4	8
19	0.2	3	7
20	0.2	3	7
21	0.1	3	7
22	0.2	3	7
23	0.1	3	5
24	0.7	8	9
25	0.2	4	6
26	0.1	4	5
27	0.3	8	8
28	0.4	8	8
29	0.3	8	8
30	0.8	8	10
31	0.4	4	8
32	0.4	4	8
33	0.4	4	8
34	0.8	14	10
35	1.0	8	6
36	0.8	10	12
37	1.4	16	12
38	0.6	8	12
39	0.6	12	10
40	0.5	8	8
41	0.5	8	8
42	0.5	8	8
43	0.5	8	8
44	0.5	8	8
45	0.8	16	10
46	0.8	16	16
47	0.5	8	10
48	0.5	8	5
49	0.5	8	5
50	0.8	16	10
51	0.4	6	5
52	0.6	8	8
53	0.7	14	14
54	0.4	10	14
55	0.4	8	8
56	0.9	8	16
57	0.3	5	8
58	0.4	16	13
59	0.7	12	15
60	0.7	12	15
61	0.5	6	8
62	0.4	8	8
63	0.8	14	14
64	0.3	5	4
65	0.1	3	3
66	0.2	3	3
67	0.1	3	3
68	0.1	3	3
69	0.1	3	3
70	0.1	3	3
71	0.8	16	15
72	0.4	6	6
73	0.3	6	6
74	1.2	12	14
75	0.8	8	14
76	0.5	10	12
77	0.4	8	10
78	0.6	12	14
79	0.5	12	14
80	0.7	12	14
81	0.8	6	12
82	0.8	6	10
83	0.6	8	10
84	0.6	8	10
85	0.6	10	10
86	0.8	8	10
87	0.5	6	12
88	0.5	6	12
89	0.2	4	4
90	0.6	8	10
91	0.6	8	10
92	0.6	8	10
93	0.4	8	12
94	0.4	8	12
95	0.3	6	8
96	0.2	4	6

LEGEND:-

VC denotes VEHICLE CROSSING
TK denotes TOP OF KERB
DS:H: denote DIAMETER, SPREAD and HEIGHT of TREE
PP denotes POWER POLE
SM denotes SEWER MANHOLE
HYD denotes HYDRANT
SV denotes STOP VALVE
GDN denotes GARDEN
US denotes UNKNOWN SERVICE
TEL denotes TELSTRA
S denotes SEWER
CONC denotes CONCRETE
WT denotes WATER TANK

GENERAL NOTES:-

1. THE BOUNDARIES OF THE LAND HAVE NOT BEEN SURVEYED. FEATURES SHOWN ON THE PLAN HAVE BEEN PLOTTED IN RELATION TO THE OCCUPATIONS.
2. ONLY THOSE SERVICES VISIBLE AT THE TIME OF SURVEY HAVE BEEN LOCATED.
3. UNDERGROUND SERVICES HAVE BEEN PLOTTED FROM DIAL BEFORE YOU DIG PLANS. THE RELEVANT AUTHORITIES MUST BE CONTACTED TO DETERMINE THE FULL EXTENT OF SERVICES PRIOR TO ANY WORKS ON OR NEAR THE SITE.
4. ADJOINING INFORMATION IN DASHED LINES HAS BEEN PLOTTED FROM AERO-PHOTOGRAPH (SPATIAL INFORMATION EXCHANGE)
5. ONLY TREES GREATER THAN 3.5 METRES IN HEIGHT ARE SHOWN ON THIS PLAN AND THEIR POSITION IS DIAGRAMMATIC ONLY AND MAY REQUIRE ADDITIONAL SURVEY WHERE CRITICAL TO DESIGN.
6. CONTOURS ARE INDICATIVE AT GROUND FORM ONLY. SPOTS LEVELS ONLY SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.
7. CONTOUR INTERVAL 0.5 m.
8. ALL SETOUT LEVELS MUST BE REFERRED TO THE BENCH MARK.
9. THE ORIENTATION OF THIS PLAN IS APPROXIMATE TRUE NORTH. THIS HAS NOT BEEN VERIFIED AS PART OF THIS PLAN AND SHOULD YOU REQUIRE A MORE ACCURATE DETERMINATION OF TRUE NORTH A FURTHER SURVEY IS NECESSARY.
10. THE LAND IS AFFECTED BY A COVENANT AS SET OUT IN
    - TRANSFER B272789
11. THE LAND IS BENEFITED BY:
    - EASEMENT APPURTENANT TO THE LAND (A376695)
    - EASEMENT FOR DRAINAGE APPURTENANT TO THE LAND (J352097)
    - EASEMENT FOR DRAINAGE APPURTENANT TO THE LAND (J352098)

(I) EASEMENT FOR DRAINAGE APPURTENANT TO THE LAND AFFECTING THE PART SHOWN SO BURDENED IN LOTS B & C IN PLAN WITH J352097
(J) EASEMENT FOR DRAINAGE APPURTENANT TO THE LAND AFFECTING THE PART OF THE LAND 3.048 m WIDE & VARIABLE SHOWN IN PLAN WITH J352098 & LOT D IN PLAN WITH J352097

UNDERGROUND SERVICES LEGEND

- UNDERGROUND SEWERMAIN
- UNDERGROUND WATERMAIN
- UNDERGROUND GASMAIN
- UNDERGROUND TELSTRA COMMUNICATIONS CABLES
- UNDERGROUND ELECTRICITY CABLES
- UNDREGROUND OPTUS COMMUNICATION CABLES

APPROXIMATE POSITION ONLY VIDE DIAL BEFORE YOU DIG PLANS JOB No. 714.1833. WHERE CRITICAL TO DESIGN UNDERGROUND SERVICES SHOULD BE LOCATED BY GROUND PENETRATING RADAR PRIOR TO DESIGN OR EXCAVATION.

2 4 6 8 10 20 30 40
1:400

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ISSUE	DATE	AMENDMENT

CLIENT: Ashbury Developments Pty Ltd

SCALE 1:400
ORIGIN OF LEVELS: SSM 96440 RL 40.9 AHD
DATUM: A.H.D.
REF.:6175
DATE: 20/02/2014
SURV/CHK: RL /DB
SHEET 1 OF 2 SHEETS
PLAN A1
ISSUE A

DETAIL AND LEVEL SURVEY OF LOT 1 IN D.P.342135154
165 MILTON STREET
ASHBURY

SDG LAND DEVELOPMENT SOLUTIONS ABN 83 015 028 935
Unit 7 18 Mons Road NORTHMEAD 2152
P.O.Box 2572 NORTH PARRAMATTA 1750
t: (02) 9630 7955
e: office@sdgnet.au
w: www.sdgnet.au

DIAL BEFORE YOU DIG www.1100.com.au

Sample Register

~~Daily Remediation and Validation Report Card~~ E.S.A

e22232 - Ashbury - 24.6.14

Environmental Investigations Australia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street, Pyrmont NSW
Ph: (02) 9516 0722 Fax: (02) 9518 5088, service@eiaustralia.com.au

Fresh air calibration completed?	Yes 8:45, 24.6.14
Span gas calibration completed?	99.8 " "

Primary Samples:	Max PID Reading (ppm):	QA/QC Samples:	Sample Description, etc. (Type of strata, colour, consistency, particle size, particle shape, grading, secondary materials, moisture, odour)
BH1-1 (2LB)	3.3.	B1, I1	See Logs.
BH2-1 (2LB)			
-2 ~~3LB~~			
-3			
-4			
BH3-1 3LB			
-2			
-3			
-4			
-5			
BH6-1 3LB			
-2			
-3			
-4			
BH7-1 2LB			
-2			
BH8-1 3LB			
-2			
-3			
BH9-1 2LB			
-2			
-3			

Signed by:

BH No: 1/MW1
Sheet:
Job No: E22232

Borehole Log

Client:
Principal:
Project:
Location: 16 + Milton St Ashbury

Started:
Finished: 24.6.14
Logged:
Checked: ES/CY

Equipment: Hartgeo
Diameter: 100mm

Slope: -90°
Bearing: --

RL Surface:
Datum:

BH1-1

drilling information					material information					
method	~~support~~ 2:30	water	notes, samples, tests, etc	depth (m)	graphic log	USCS symbol	material description soil type, particle characteristics or fines plasticity, colour, secondary and minor components	moisture condition	consistency / density index	structure and additional observations
HA	3.3		0.16-0.26 -1 -2	0.26 0.5 1.0 1.5 2 2.5 3.0			0.16 Conc. 160mm ① Fill; Sand, f-m grained, m 0.26 Orange/brown, No odour Hole to be continued with geotech teams ↓	M	-	Gabic To be completed by Geotech Thursday 26/6.

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CT cable tool
HA hand auger
D diatube
B blank bit
V V-bit
T TC-bit
*bit shown by suffix e.g. ADV

support
N nil
M mud
C casing

water
NE not encountered
level at date/time
inflow
complete outflow
partial outflow

notes, samples, tests
D disturbed sample
BD bulk disturbed sample
U50 thin-walled tube sample, 50mm diam
HP hand penetrometer (kPa)
SV shear vane test (kPa)
SPT standard penetration test (blows/300mm)
N* SPT value (blows/300mm)
* denotes sample taken
Nc SPT value with solid cone
DCP dynamic cone penetrometer (blows/100mm)
R refusal of DCP or SPT

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
possible boundary

D/C's: B1/I1 on BH1-1

9,11,13,14

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

BOREHOLE: BH 1

Project E22232
Location 165 MILTON ST
Position ASHBURY
Job No. RESDEV
Client CORONATION

Contractor MACDRILL
Drill Rig ES0
Inclination -90°

Sheet 1 OF
Date Started 26/6/14
Date Completed 26/6/14
Logged AM Date: 26/6/14
Checked Date:

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
			0						0.15 CONCRETE, with m aggr			PAVEMENT
0.15					0.15-0.2				0.15 FILL: SAND, f-mg, yellow, with some brick fragments to 40mm, no odour			FILL
			0.3		~~Cobbles~~ BH1-ASB R=0,A							
ADT	E		0.1		0.5-~~0.6~~ BH1-2 ~~SPT, BH1-2~~ R=0,A				From 0.3m: FILL, Sandy GRAVEL, coarse, angular, red, ~~with~~ m-c sand, no odour	/	/	
			1	PID 0.1	1.0-1.1 BH1-3				From 1.0: with some high plasticity clay ~~pockets~~ zones, grey, no odour			
					1.5-1.6							
				0.1	BH1-4							
			2						2.0			
		▽ GWNE = 2.3 (27/6/14)						CI	Sandy CLAY, ~~medium~~ plasticity, red/brown f-mg sand, with some f-m, Ang, fe gravel no odour	M	~~St~~	RESIDUAL SOIL
				0.0	-2.5-2.6 BH1-5				Ironstone			
			3	0.0	2.9-2.1 BH1-6				3.2			
					3.0-45 SPT, 13, 18, 19 N=37 R=0.45			CH	Silty CLAY, high plasticity grey, with some f- fe gravel		H	
				0.0	BH1-7 3.4-3.45							
	3.9 H1		4						3.9 SHALE, ~~grey~~, inferred distinctly weathered, inferred very low strength	/	/	WEATHERED ROCK
			5						5.6 Start coring @ 5.6m			
			6									
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

EIA LIB 1.01.GLB Log IS AU BOREHOLE 3 E22031.GPJ <<DrawingFile>> 25/03/2014 11:29 8.30.003 Datgel Lab and In Situ Tools - DGD | Lib: EIA 1.01 2014-01-15 Prj: EIA 1.01.1 2014-01-17

Borehole Log

BH No: 2/MW2
Sheet:
Job No: e722/32

Client:
Principal:
Project:
Location:

Started: 2.6.14
Finished:
Logged: CS/CL
Checked:

Equipment: Hartgeo
Diameter: 100mm

Slope: -90°
Bearing: --

RL Surface:
Datum:

drilling information | material information

method	support	water	notes, samples, tests, etc	depth (m)	graphic log	USCS symbol	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture condition	consistency / density index	structure and additional observations
DTC							0.17 Conc. 170mm			Gatic
HA	5		-1	0.2			① 0.28 with traces of paper	M		concrete
				0.5			Fill Sand F-M grained			Back fill
HA	16.4		-2	0.5			Dark brown	D		
HD				0.7			Orange. No odour.			
				1.0			@ 1m.			
			1.17	1.5			Clay, M-H density, orange			@2.1m
	24.0		-3	1.5			brown. No odour. V. Stiff	D		Bentonite
				2						@3.4m
				2.5			@2.5m Shale: GW grey-orange/brown.			@7.5m
							no odour.			Saturated Sand
				3.0				D		
			3.8m							
			@3.9m							
	900+		=4							
							EOH @8m.			@7.5m

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CT cable tool
HA hand auger
D diatube
B blank bit
V V-bit
T TC-bit
*bit shown by suffix e.g. ADV

support
N nil
M mud
C casing

water
NE not encountered
level at date/time
inflow
complete outflow
partial outflow

notes, samples, tests
D disturbed sample
BD bulk disturbed sample
U50 thin-walled tube sample, 50mm diam
HP hand penetrometer (kPa)
SV shear vane test (kPa)
SPT standard penetration test (blows/300mm)
N* SPT value (blows/300mm)
* denotes sample taken
Nc SPT value with solid cone
DCP dynamic cone penetrometer (blows/100mm)
R refusal of DCP or SPT

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
possible boundary

BH No: 3
Sheet:
Job No: E22232

Borehole Log

Client:
Principal:
Project: E22232
Location:

Started: 24.6.14
Finished:
Logged: ES/CY.
Checked:

Equipment: ADT - Hardgro
Diameter: 100 mm.

Slope: -90°
Bearing: --

RL Surface:
Datum:

drilling information | material information

method	support	water	notes, samples, tests, etc	depth (m)	graphic log	USCS symbol	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture condition	consistency / density index	structure and additional observations
DTC	P&D		0.3-0.5				Concrete - 300mm.	-		Gatic
AP T	5.2		-1	0.5			FILL: SAND. F-M Grained Brown/orange/Red. with traces of gravels, fine to medium grained	D		Backfill
	2.5		1.2 BH3-2	1.0			From: 1.2 FILL: Clay Dark grey/red. M-H Plas, no odour			
			1.8-1.9	1.5						
	5.4		-3	2						Brick 3.5 4.0
			2.4 -2.5	2.5			@ 2.4 Natural clay	M		
	6.3.8		-4				Lmd Brown M-H Plastic Very stiff with iron stone Red iron			
				3.0						Sand
			4.0m -R/m				@ 3.4 Shale EW dGrey, no odour	D		
6m		9.6	-5				EOH @ 6m			7.5

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CT cable tool
HA hand auger
D diatube
B blank bit
V V-bit
T TC-bit
*bit shown by suffix e.g. ADV

support
N nil
M mud
C casing

water
NE not encountered
level at date/time
inflow
complete outflow
partial outflow

notes, samples, tests
D disturbed sample
BD bulk disturbed sample
U50 thin-walled tube sample, 50mm diam
HP hand penetrometer (kPa)
SV shear vane test (kPa)
SPT standard penetration test (blows/300mm)
N* SPT value (blows/300mm)
* denotes sample taken
Nc SPT value with solid cone
DCP dynamic cone penetrometer (blows/100mm)
R refusal of DCP or SPT

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
possible boundary

BH No: BH4/MW4
Sheet:
Job No: E22232

Borehole Log

Client: CORONATION PROPERTY
Principal:
Project: E22232
Location: 165 MILTON ST, ASHBURY
Started: 7/7/14
Finished:
Logged:
Checked:
Equipment: AD/T
Diameter: 100mm
Slope: -90°
Bearing: --
RL Surface: 36.05
Datum:

drilling information					material information					
method	support	water	notes, samples, tests, etc	depth (m)	graphic log	USCS symbol	material description soil type, particle characteristics or fines plasticity, colour, secondary and minor components	moisture condition	consistency / density index	structure and additional observations
DT				0.3		—	Fill - Concrete - 300mm	-	-	HARDSTAND
AD/T		GWNE	0.40 -1, ES, 0.90	0.5			Fill - silty SAND, fine-medium grained, brown-dark brown, no odour			FILL
				1.0						
				1.5					—	
				2						
			2.40 -2, ES, 2.70	2.5 2.7				M		
				3.0		CI	Sandy CLAY, medium plasticity, brown-dark brown. Sand is fine grained. Trace of gravel, fine, rounded, inferred Very Stiff			RESIDUAL SOIL
			3.20 -3, ES, 3.50	3.5					VSt	
				4.0						

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CT cable tool
HA hand auger
D diatube
B blank bit
V V-bit
T TC-bit
*bit shown by suffix e.g. ADV

support
N nil
M mud
C casing

water
NE not encountered
level at date/time
inflow
complete outflow
partial outflow

notes, samples, tests
D disturbed sample
BD bulk disturbed sample
U50 thin-walled tube sample, 50mm diam
HP hand penetrometer (kPa)
SV shear vane test (kPa)
SPT standard penetration test (blows/300mm)
N* SPT value (blows/300mm)
* denotes sample taken
Nc SPT value with solid cone
DCP dynamic cone penetrometer (blows/100mm)
R refusal of DCP or SPT

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
possible boundary

BH No: BH4 Continued
Sheet:
Job No:

Borehole Log

Client:
Principal:
Project:
Location:
Started:
Finished:
Logged:
Checked:

Equipment:
Diameter:
Slope: -90°
Bearing: --
RL Surface:
Datum:

drilling information | **material information**

method	support	water	notes, samples, tests, etc	depth (m)	graphic log	USCS symbol	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture condition	consistency / density index	structure and additional observations
AD/T		CWNE		4.5				M		
				5.0						
				5.5			SHALE, grey, inferred extremely weathered.			WEATHERED ROCK
				6.0						
				6.5				—	—	
				7.0			inferred, distinctly weathered			
			7.7 -4, ES					—	—	
			8.0	8.0			EOH @ 8m - Target depth reached - GATIC			

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CT cable tool
HA hand auger
D diatube
B blank bit
V V-bit
T TC-bit
*bit shown by suffix e.g. ADV

support
N nil
M mud
C casing

water
NE not encountered
level at date/time
inflow
complete outflow
partial outflow

notes, samples, tests
D disturbed sample
BD bulk disturbed sample
U50 thin-walled tube sample, 50mm diam
HP hand penetrometer (kPa)
SV shear vane test (kPa)
SPT standard penetration test (blows/300mm)
N* SPT value (blows/300mm)
* denotes sample taken
Nc SPT value with solid cone
DCP dynamic cone penetrometer (blows/100mm)
R refusal of DCP or SPT

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
possible boundary

Borehole VS

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

BOREHOLE: BH 5

Project Res Dev
Location 165 Milton St
Position Ashbury
Job No. E22232
Client CORONATION

Contractor MACDRILL
Drill Rig ESO
Inclination -90°

Sheet 1 OF
Date Started 27/6/14
Date Completed 27/6/14
Logged AM Date: 27/6/14
Checked Date:

Drilling					Sampling		Field Material Description					
METHOD	PENETRATION RESISTANCE	WATER	DEPTH (metres)	DEPTH RL	SAMPLE OR FIELD TEST	RECOVERED	GRAPHIC LOG	USCS SYMBOL	SOIL/ROCK MATERIAL DESCRIPTION	MOISTURE CONDITION	CONSISTENCY DENSITY	STRUCTURE AND ADDITIONAL OBSERVATIONS
ADT	E		0	0.1	0.0-0.1 BH5-1, BH5-A&B			SM	Silty SAND/~~sandy~~ SILT, fg, low plasticity, dark brown, with trace rootlets	M	L/S	~~TOPSOIL~~ FILL
					BH5-2 SPT 0.5-0.6 7/100 HB N=HB				0.4 FILL sandy GRAVEL, c, subA, ~~ings~~ and inferred ~~ine~~ AC			
			1	0.0	BH5-3 R=0.1A				Silty CLAY, lp, ~~red~~grey, with some f~~m~~ A fg gravel		St	RESIDUAL SOIL
				0.1	BH5-4 R=0A				1.5			
				0.0	1.5-1.95 5,8,9 BH5-5 N=17 R=0.45				2.2			
	22 H		2						2.2m SHALE grey, DW, VLS ~~w~~ some fe staining			WEATHERED ROCK
	VH		3						SHALE DW LS			
			4									
			5									
			6						Start coring @ 5.6m			
			7									
			8									
			9									
			10									

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

EIA LIB 1.01.GLB Log IS AU BOREHOLE 3 E22031.GPJ <<DrawingFile>> 25/03/2014 11:29 8.30.003 Datgel Lab and In Situ Tool - DGD | Lib: EIA 1.01 2014-01-15 Prj: EIA 1.01.1 2014-01-17

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

BOREHOLE: BH 5

Project ResDev
Location 165 Milton St
Position Ashbury
Job No. E22232
Client Coronation

Contractor MACDRILL
Drill Rig 1250
Inclination -90°

Sheet 2 OF 2
Date Started 27/6/14
Date Completed 27/6/14
Logged AM Date: 27/6/14
Checked Date:

Drilling						Field Material Description				Defect Information	
METHOD	WATER	TCR	RQD (SCR)	DEPTH (metres)	DEPTH RL	GRAPHIC LOG	ROCK / SOIL MATERIAL DESCRIPTION	WEATHERING	INFERRED STRENGTH $Is_{(50)}$ MPa (EL 0.03, VL 0.1, L 0.3, M 1, H 3, VH 10, EH)	DEFECT DESCRIPTION & Additional Observations	AVERAGE DEFECT SPACING (mm) (10, 30, 100, 300, 1000, 3000)
				20			Continuation from non-cored borehole Start coring @ 5.6m				
NMLC				6			LAMINITE, comprising SILTSTONE (70%), SANDSTONE (30%) (ASHFIELD SHALE NOCORE (5.6–7.3)	XW DW			
				7	7.3						
				8				DW		7.3–7.68, B, 0-10°, Pl, Ro, Sa fe 7.6–7.68, crafr	
					8.2			XW		7.79, –8.4, B, 0°, Pl, Ro, Sa fe ave sp = 80mm 7.83 J, 40°, Pl, Sm, Ca	
GNNO	1.3			9	8.7			SW		7.92, J, 40°, Pl, Ro, Ca 8.04, J, 40°, Un, Ro, Ca 8.22 – 8.4, crafr core recovered as fragmented rock 8.55–8.7 crafr	
					9.5					8.7–9.5, B, 0°, Pl, Ro, Ca ave sp = 250mm 8.74–8.9 J, 45° Pl, Ro, Sa fe 8.86, J, 40°, St 5mm, Ca	
	8.6			10	10.2			XW		9.15–9.19, CZ, 40mm thick Med A grade 9.41, J, 30°, Pl, Sm, Ca	
					10.7			SW-FR		9.47–9.52, CZ 50mm thick 9.84, J, 15° Pl, Ro Ca 10.2–10.68, DZ, broken while moving from splits 10.82–10.87, CZ, 50mm thick etc 11.12, B, 0°, Pl, Sm, Ca 11.34 " " " 11.38 " " " 11.41 " " "	
				12						11.68–12.58, 80°, Pl, Sm, Ca, ave sp = 130mm 12.87–14.05, 80°, Pl, Sm, Ca ave sp = 300mm	
				13							
				14			– From 14.3m: Core not recovered			14.3–14.6 core not recovered	
				15			Hole Terminated at 30.00 m				

This borehole log should be read in conjunction with Environmental Investigations Australia's accompanying standard notes.

EIA LIB 1.01.GLB Log IS AU CORED BOREHOLE 3 E22031.GPJ <<DrawingFile>> 25/03/2014 11:25 8.30.003 Datgaf Lab and In Situ Tool - DGD | Lib: EIA 1.01 2014-01-15 Prj: EIA 1.01.1 2014-01-17

BH No: BH 6
Sheet:
Job No: E2232

Borehole Log

Client:
Principal:
Project:
Location:

Started:
Finished: 24/6/14, 10am
Logged: ES/CY
Checked:

Equipment: HA
Diameter: 75mm

Slope: -90°
Bearing: --

RL Surface:
Datum:

drilling information | material information

method	support	water	notes, samples, tests, etc	depth (m)	graphic log	USCS symbol	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture condition	consistency / density index	structure and additional observations
HA			0-0.2	0.0			Grass. Sand.	M		
		374	-1	0.2			FILL: ~~CB~~ B. Brown. F-M. grained. With grass root let. No odour.			
			0.4-0.6	0.4		0.2				
		343	-2	0.5			FILL - (1) B. Red brown with gravels. (F-C) No odour.	D		
						0.6			VSt	
							From 0.6 with clay ~~MH~~ plast. Red-Brown ES. Clay content increasing with depth.	D		
		53	-3	1.1						
				1.2						
			-4	1.4						
		333		1.5			EOH @ 1.5m in stiff clay. Refusal			

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CT cable tool
HA hand auger
D diatube
B blank bit
V V-bit
T TC-bit
*bit shown by suffix e.g. ADV

support
N nil
M mud
C casing

water
NE not encountered
level at date/time
inflow
complete outflow
partial outflow

notes, samples, tests
D disturbed sample
BD bulk disturbed sample
U50 thin-walled tube sample, 50mm diam
HP hand penetrometer (kPa)
SV shear vane test (kPa)
SPT standard penetration test (blows/300mm)
N* SPT value (blows/300mm)
* denotes sample taken
Nc SPT value with solid cone
DCP dynamic cone penetrometer (blows/100mm)
R refusal of DCP or SPT

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
possible boundary

-1 PID = 374!
-2 = 343

Yes I calibrated, Span cal 8.45am

Borehole Log

BH No: 7
Sheet:
Job No:

Client:
Principal:
Project:
Location:

Started: 24.06/14
Finished:
Logged: CY/ES.
Checked:

Equipment: HA
Diameter: 75mm

Slope: -90°
Bearing: --

RL Surface:
Datum:

drilling information | **material information**

method	support	water	notes, samples, tests, etc	depth (m)	graphic log	USCS symbol	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture condition	consistency / density index	structure and additional observations
HA	PP		0-0.1 BH-1	0			Ashphalt			
	1.5			0.5			CLAY: M-H Plast, Grey Brown with Red/Orange, with some gravels medium-coarse grained (Reworked Natural) (2)	D.	F	
	3.2		0.5 -2	1.0			EOH 0.5 Refusal by stiff clay			
				1.5						
				2						
				2.5						
				3.0						

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CT cable tool
HA hand auger
D diatube
B blank bit
V V-bit
T TC-bit
*bit shown by suffix e.g. ADV

support
N nil
M mud
C casing

water
NE not encountered
level at date/time
inflow
complete outflow
partial outflow

notes, samples, tests
D disturbed sample
BD bulk disturbed sample
U50 thin-walled tube sample, 50mm diam
HP hand penetrometer (kPa)
SV shear vane test (kPa)
SPT standard penetration test (blows/300mm)
N* SPT value (blows/300mm)
* denotes sample taken
Nc SPT value with solid cone
DCP dynamic cone penetrometer (blows/100mm)
R refusal of DCP or SPT

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
possible boundary

Borehole Log

BH No: 8
Sheet:
Job No: e22232

Client:
Principal:
Project:
Location:

Started: 24.6.14
Finished:
Logged: ES/CY
Checked:

Equipment: HA
Diameter: 75mm

Slope: -90°
Bearing: --

RL Surface:
Datum:

drilling information | **material information**

method	support	water	notes, samples, tests, etc	depth (m)	graphic log	USCS symbol	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture condition	consistency / density index	structure and additional observations
HA	PD		0.2 BH-1	0.15			Ashphalt 0.05m / M-C Gravel 100m. Gravelly Clay. (F) Black-grey M-H Plasticity orange. Noodour.	M	-	
	5.0		0.5 BH8-2	0.5						
	25.6		0.6-0.7 BH8-3	1.0			From 0-6 Gravelly Silty Clay. ~~Silt~~ is M-H Plast. Black-Brown. Silt is M-C grained No odour			
	13.6			1.5			EOH 0.7m. refusal by stiff clay			
				2						
				2.5						
				3.0						

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CT cable tool
HA hand auger
D diatube
B blank bit
V V-bit
T TC-bit
*bit shown by suffix e.g. ADV

support
N nil
M mud
C casing

water
NE not encountered
level at date/time
inflow
complete outflow
partial outflow

notes, samples, tests
D disturbed sample
BD bulk disturbed sample
U50 thin-walled tube sample, 50mm diam
HP hand penetrometer (kPa)
SV shear vane test (kPa)
SPT standard penetration test (blows/300mm)
N* SPT value (blows/300mm)
* denotes sample taken
Nc SPT value with solid cone
DCP dynamic cone penetrometer (blows/100mm)
R refusal of DCP or SPT

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
possible boundary

Borehole V6

Borehole Log

BH No: 10
Sheet:
Job No: P22232

Client:
Principal:
Project:
Location:

Started: 25.6.14
Finished:
Logged: EJS
Checked:

Equipment: Hartgeo
Diameter: 100

Slope: -90°
Bearing: --

RL Surface:
Datum:

drilling information					material information					
method	support	water	notes, samples, tests, etc	depth (m)	graphic log	USCS symbol	material description soil type, particle characteristics or fines plasticity, colour, secondary and minor components	moisture condition	consistency / density index	structure and additional observations PID
AC							~~Core 400mm~~ Core 400mm			
HA			-1	0.5			(1) Fill; Sand Y/Br, fmg.	D	-	0.9
			-2				NO odour			
				1.0			(1B) Fill; Clay (reworked) o/Br-R-Gy No odour	M		0.3
				1.5						
			-3	2						
				2.5						
			-4				(2) R-Gy Clay.	m	VSt	0.2
				3.0			TDR @ 3.2m on Shale			

method
- AS auger screw*
- AD auger drill*
- RR roller/tricone
- W washbore
- CT cable tool
- HA hand auger
- D diatube
- B blank bit
- V V-bit
- T TC-bit

*bit shown by suffix e.g. ADV

support
- N nil
- M mud
- C casing

water
- NE not encountered
- level at date/time
- inflow
- complete outflow
- partial outflow

notes, samples, tests
- D disturbed sample
- BD bulk disturbed sample
- U50 thin-walled tube sample, 50mm diam
- HP hand penetrometer (kPa)
- SV shear vane test (kPa)
- SPT standard penetration test (blows/300mm)
- N* SPT value (blows/300mm)
- * denotes sample taken
- Nc SPT value with solid cone
- DCP dynamic cone penetrometer (blows/100mm)
- R refusal of DCP or SPT

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
- D dry
- M moist
- W wet
- Wp plastic limit
- Wl liquid limit

consistency
- VS very soft
- S soft
- F firm
- St stiff
- VSt very stiff
- H hard
- Fb friable

density index
- VL very loose
- L loose
- MD medium dense
- D dense
- VD very dense

material boundaries
- known boundary
- probable boundary
- possible boundary

BH No: 11
Sheet:
Job No: E22232

Borehole Log

Client:
Principal:
Project:
Location:
Started: 25.6.14
Finished:
Logged:
Checked: ES.

Equipment: Hardieo
Diameter: 100mm
Slope: -90°
Bearing: --
RL Surface:
Datum:

drilling information | material information

method	support	water	notes, samples, tests, etc	depth (m)	graphic log	USCS symbol	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture condition	consistency / density index	structure and additional observations
DC							Core. ~~Max~~ 290mm			PID
			-1	0.4			① 0.45 Fill; Sand.	m		0.7
				0.5						
			-2	0.5			② Rlby clay.	m		1.3
				0.7			0.6			
			-3				③ Shale	D		0.1
				1.0			EOH @ 1m			
				1.5			TDR.			
				2						
				2.5						
				3.0						

-100.3-0.5
-200.5-0.7
-300.6-0.8

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CT cable tool
HA hand auger
D diatube
B blank bit
V V-bit
T TC-bit
*bit shown by suffix e.g. ADV

support
N nil
M mud
C casing

water
NE not encountered
level at date/time
inflow
complete outflow
partial outflow

notes, samples, tests
D disturbed sample
BD bulk disturbed sample
U50 thin-walled tube sample, 50mm diam
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SV shear vane test (kPa)
SPT standard penetration test (blows/300mm)
N* SPT value (blows/300mm)
* denotes sample taken
Nc SPT value with solid cone
DCP dynamic cone penetrometer (blows/100mm)
R refusal of DCP or SPT

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
possible boundary

Borehole Log V6

Borehole Log

BH No: 12
Sheet:
Job No: e22232

Client:
Principal:
Project:
Location:

Started: 25.6.14
Finished:
Logged: ES
Checked:

Equipment: Hartigen
Diameter: 100

Slope: -90°
Bearing: --

RL Surface:
Datum:

drilling information | **material information**

method	support	water	notes, samples, tests, etc	depth (m)	graphic log	USCS symbol	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture condition	consistency / density index	structure and additional observations
							Conc. 200mm			PID
			-1				Fill (1) Y/Br Sand			0.1
				0.5			0.5			
			-2				Nat. Clay (2) R/Gy, ironstone gravels			0.2
				1.0						
				1.5			TDR @ 0.7m			
				2						
				2.5						
				3.0						

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CT cable tool
HA hand auger
D diatube
B blank bit
V V-bit
T TC-bit
*bit shown by suffix e.g. ADV

support
N nil
M mud
C casing

water
NE not encountered
level at date/time
inflow
complete outflow
partial outflow

notes, samples, tests
D disturbed sample
BD bulk disturbed sample
U50 thin-walled tube sample, 50mm diam
HP hand penetrometer (kPa)
SV shear vane test (kPa)
SPT standard penetration test (blows/300mm)
N* SPT value (blows/300mm)
* denotes sample taken
Nc SPT value with solid cone
DCP dynamic cone penetrometer (blows/100mm)
R refusal of DCP or SPT

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
possible boundary

BH No: MW 13.
Sheet:
Job No: e22232

Borehole Log

Client:
Principal:
Project:
Location:

Started: 25.6.14
Finished:
Logged: RS
Checked:

Equipment: 4WD Mk Hartgeo
Diameter: 100mm

Slope: -90°
Bearing: --

RL Surface:
Datum:

drilling information | **material information**

method	support	water	notes, samples, tests, etc	depth (m)	graphic log	USCS symbol	material description (soil type, particle characteristics or fines plasticity, colour, secondary and minor components)	moisture condition	consistency / density index	structure and additional observations
DC							Conc. 300mm			
			-1	0.3 0.5			(1a) Fill; Sand o/Br, f-m grained no odour	m	-	6.7
			-2	0.5 0.7			(1b) Fill; clay, o R/Br, reworked, some gravel no odour	m	-	0.3
AD/T				1.0						
			-3	1.3 1.5						
			-4	1.8 2						
				2.1			R/Gy Nat Clay (2) Mk plastic.	v stiff		0.6
			-5	2.5 2.7			(3) EW Shale, o/Grey.	D	-	
				3.0			TDR for enviro 3.0m TDR @ 4m (For geotech)			

method
AS auger screw*
AD auger drill*
RR roller/tricone
W washbore
CT cable tool
HA hand auger
D diatube
B blank bit
V V-bit
T TC-bit
*bit shown by suffix e.g. ADV

support
N nil
M mud
C casing

water
NE not encountered
level at date/time
inflow
complete outflow
partial outflow

notes, samples, tests
D disturbed sample
BD bulk disturbed sample
U50 thin-walled tube sample, 50mm diam
HP hand penetrometer (kPa)
SV shear vane test (kPa)
SPT standard penetration test (blows/300mm)
N* SPT value (blows/300mm)
* denotes sample taken
Nc SPT value with solid cone
DCP dynamic cone penetrometer (blows/100mm)
R refusal of DCP or SPT

Classification symbols and soil description based on unified classification system. Refer accompanying description sheets for further information.

moisture
D dry
M moist
W wet
Wp plastic limit
Wl liquid limit

consistency
VS very soft
S soft
F firm
St stiff
VSt very stiff
H hard
Fb friable

density index
VL very loose
L loose
MD medium dense
D dense
VD very dense

material boundaries
known boundary
probable boundary
possible boundary

Datasheet V3

~~AUSWIDE GEOTECHNICAL~~ – FIELD LOG SHEET Date: 24/6/14 ~~AW~~

ADDRESS: 165 Milton St, Ashbury OPERATOR: Damien Hart

~~TEST SITE 1~~ METHOD: (Rig) Hand auger Excavator DH9

~~TEST SITE 2~~ METHOD: (Rig) Hand auger Excavator DH13

DEPTH mm	FILL	SOIL TYPE	COLOUR	MOISTURE w, vm, m, dry	STIFF DENSE
100		CONCRETE SLAB			
200					
300	☒	FILL; SAND, CLAY, SILT; F-M. GRAVEL ①	OR/GY	M	MD 2
400					VST 4
500		CLAY; HIGH PLASTICITY ②	OR/GY	M	250 5
600					4
700		NON-HIGH PLASTICITY - GY/NBS			450 4
800		(MC<PL)			5
900					7
1000					D
1100		FILL SILTSTONE; F-M.	OR/GY	D	25+
1200					50m
1300		GRAVEL ③			BOULDER
1400					
1500		NON-HIGH PLASTICITY.			
1600					
1700					
1800					
1900					
2000					
2100					
2200					
2300		FILL.			
2400					
2500					
2600					
2700					
2800					
2900					
3000					

DEPTH mm	FILL	SOIL TYPE	COLOUR	MOISTURE w, vm, m, dry	STIFF DENSE
100		CONCRETE SLAB			
200					
300	X			M	MD 1
400	X	②	OR/BR		2
500	X	FILL; GRAVEL,			2
600	X		GY/NBS		2
700	X	CLAY, SILT, NBS.			3
800	X				2
900	X	GRAVEL			2
1000	X				1
1100	X				2
1200	X				2
1300	X				2
1400	X				1
1500	X				2
1600	X				25+
1700	X				30m
1800	X				BOULDER
1900	X				
2000	X				PRE-DRILL
2100	X				
2200	X			M	VST 3
2300					7
2400					400 7
2500		②			8
2600					1600 9
2700					25+
2800		FILL SILTSTONE; ③			30m
2900		F-M. GRAVEL			BOULDER
~~3000~~		NBS. - HIGH PLASTICITY			

Office Use:

CLASS	Ys	Yst	IPS	BEARING	Low	Firm	Stiff	Bedrock
			2.9 @ 4.0m	~~BEARING~~				

~~AUSWIDE GEOTECHNICAL~~ – FIELD LOG SHEET

Date: 25/6/14 ~~AW~~

ADDRESS: 165 Mirrool St, Albury

OPERATOR: Damien Hart

~~TEST SITE 1~~ METHOD: (Rig) Hand auger Excavator

TEST SITE 2 METHOD: Rig (Hand auger) Excavator

DEPTH mm	FILL	BH11 SOIL TYPE	COLOUR	MOISTURE w, vm, m, dry	STIFF DENSE
100		CONCRETE SLAB			
200					
300		FILL (1)		M	MD
400				VSM	VS 6
500		(2)			600 4
600					8
700				D	25+
800		FILL SANDSTONE;			80mm
900					Bounce
1000		(3)			
1100		NO. - HIGH NOISE			
1200					
1300					
1400					
1500					
1600					
1700					
1800					
1900					
2000					
2100					
2200					
2300		Hole 2.0m			
2400					
2500					
2600					
2700					
2800					
2900					
3000					

DEPTH mm	FILL	BH14 SOIL TYPE	COLOUR	MOISTURE w, vm, m, dry	STIFF DENSE
100					M
200			Br/Gy	M	
300		FILL, GRAVELLY			
400			Gy/Br		
500		CLAY, SILT, SAND			
600					
700		GLASS, F-M. GRD			
800					
900					
1000					
1100					
1200					
1300					
1400					
1500					
1600					
1700					
1800					
1900				SM	VS-S
2000		(2)			
2100					
2200					
2300		Hole 2.0m			
2400					
2500					
2600					
2700					
2800					
2900					
3000					

PRE-PAVE

8
3
4
5
5
7
8
8
9
12
13
15
25+
30mm
Bounce

Office Use:

CLASS	Ys	Yst	IPS	BEARING	Low	Firm	Stiff	Bedrock

E 22232

Site Walkover 165 Milton St 24.06.14

Tyres 4U.

Vegetation appears to be normal.

1 Surrounding:

E - Residential (L-M Density)

N - Commercial office / Security

W - Sloping down to public park/sports field, L-M Residential

S - L-M Den. Residential. Gas pipe along S boundary.

2 Building Description:

2 storey office, brick steel glass facade.

front garden.

2.1 Concrete driveway - deteriorate, multiple cracks. Wasted inventory stored on driveway

2.2 External:

Peeling/stained cladding, stained rusted gutters.

Stained wall behind water tap.

Peeling paints on external pipes/corner wall

Petro spill stains on ground.

Chemical spill stain on ground.

Multiple cracks on ground. (mostly covered in concrete.

2.3 Carpark. Covered in ashphalt.

2.4 Warehouse: high roof, storing tyres. (half saw tooth roof)

general machinery, conc. floor, multiple cracks.

stained wall.

poly carbonate roof, storage of LPG bottles./chemical

2.5 Diesel Pump room. for water tank. access denied by tenrant

ENVIRONMENTAL INVESTIGATIONS GROUNDWATER SAMPLING FIELD SHEET

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Site Address:	165 Milton St, Ashbury	Job Number:	E22232
Client:		Date:	16/7/14
Field Staff:	DS	Well ID:	MW1
Well Location:	Central North in driveway	Round No:	1
WELL BACKGROUND			
Well Installation Date:		Well Stickup (m):	0.095
Initial Well Depth (mbgl):		Screen Interval (mbgl):	4.486 +0.095 mbgl
Previous Sampling Date:		Previous SWL (m):	
PRE PURGE			
Well Head Condition:		PID Headspace (ppm):	
Total Well Depth (mbgl):	7.486 +0.095	Water Measure Device:	
SWL (mbtoc):	2.276	Purge Vol = Water Column x 6 (50mm Well)	
Water Column (m):		Purge Volume (L):	
PHASE SEPARATED HYDROCARBONS(PSH)			
Depth to PSH (mbtoc):		PSH Visually Confirmed:	
PID Headspace (ppm):		PSH Thickness (mm):	
LOW FLOW: PURGING & SAMPLING			
Depth of Pump Inlet:	4.750	Fill Timer:	10
Pump Pressure Regulator (psi):	40	Discharge Timer:	5
Weather Conditions:	Fine	Cycle:	CPM 3
Pump on time:		Pump off time:	
Weather Conditions:			

WATER QUALITY PARAMETERS

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (uS/cm)	Redox (mV)	DO (mg/L)	pH	Comments (colour, turbidity, odour etc.)
12:20	3	2.295	18.4	4.06mS/cm	54	2.23	5.61	Dark brown - brown no sheen, moderate HC odour, moderate sediment low - med clarity.
Stabilisation range: 3 consecutive readings				+/- 3%	+/- 10mV	+/- 10%	+/- 0.05	

OTHER COMMENTS: Duplicate Well -> UPSS

ENVIRONMENTAL INVESTIGATIONS GROUNDWATER SAMPLING FIELD SHEET

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Site Address: 165 Milton St, Ashbury	Job Number: E22232
Client:	Date: 16/7/14
Field Staff: DS	Well ID: MW2
Well Location: North West corner of site	Round No: 1
WELL BACKGROUND	
Well Installation Date:	Well Stickup (m): 0.137
Initial Well Depth (mbgl):	Screen Interval (mbgl): 4.662
Previous Sampling Date:	Previous SWL (m):
PRE PURGE	
Well Head Condition:	PID Headspace (ppm):
Total Well Depth (mbgl): 7.662 + 0.137 mbgl	Water Measure Device:
SWL (mbtoc): 5.157	Purge Vol = Water Column x 6 (50mm Well)
Water Column (m): 2.505	Purge Volume (L):
PHASE SEPARATED HYDROCARBONS(PSH)	
Depth to PSH (mbtoc):	PSH Visually Confirmed:
PID Headspace (ppm):	PSH Thickness (mm):
LOW FLOW: PURGING & SAMPLING	
Depth of Pump Inlet: 4.850	Fill Timer: 10
Pump Pressure Regulator (psi): 35	Discharge Timer: 5
Weather Conditions: Fine	Cycle: CPM4
Pump on time:	Pump off time:
Weather Conditions:	

WATER QUALITY PARAMETERS

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (uS/cm)	Redox (mV)	DO (mg/L)	pH	Comments (colour, turbidity, odour etc.)
1:20	3	5.202	18.5	1956	52	5.95	5.33	Brown, low sed, low clarity, no odour, no sheen
Stabilisation range: 3 consecutive readings			+/- 3%	+/- 10mV	+/- 10%	+/- 0.05		

OTHER COMMENTS:

ENVIRONMENTAL INVESTIGATIONS GROUNDWATER SAMPLING FIELD SHEET

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Site Address:	Job Number:
Client:	Date:
Field Staff:	Well ID: ~~MW4~~ MW3
Well Location:	Round No:
WELL BACKGROUND	
Well Installation Date:	Well Stickup (m): 0.198
Initial Well Depth (mbgl):	Screen Interval (mbgl): 4.775
Previous Sampling Date:	Previous SWL (m):
PRE PURGE	
Well Head Condition:	PID Headspace (ppm):
Total Well Depth (mbgl): 7.775	Water Measure Device:
SWL (mbtoc): 3.375	Purge Vol = Water Column x 6 (50mm Well)
Water Column (m): 4.4m	Purge Volume (L):
PHASE SEPARATED HYDROCARBONS(PSH)	
Depth to PSH (mbtoc):	PSH Visually Confirmed:
PID Headspace (ppm):	PSH Thickness (mm):
LOW FLOW: PURGING & SAMPLING	
Depth of Pump Inlet: 5.0	Fill Timer: 10
Pump Pressure Regulator (psi): 35	Discharge Timer: 5
Weather Conditions: INDOORS / FINE	Cycle: CPM 4
Pump on time:	Pump off time:
Weather Conditions:	

WATER QUALITY PARAMETERS

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (uS/cm)	Redox (mV)	DO (mg/L)	pH	Comments (colour, turbidity, odour etc.)
2:15	2	3.492	17.1	4.24mS	75	4.23	5.93	Dark brown, high sed, fine grained, no sheen, low vis/clarity
Stabilisation range: 3 consecutive readings				+/- 3%	+/- 10mV	+/- 10%	+/- 0.05	

OTHER COMMENTS:

ENVIRONMENTAL INVESTIGATIONS GROUNDWATER SAMPLING FIELD SHEET

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Site Address:	165 Melton St Ashbury	Job Number:	E22232
Client:		Date:	16/7/14
Field Staff:	DC	Well ID:	MW4
Well Location:		Round No:	1
WELL BACKGROUND			
Well Installation Date:		Well Stickup (m):	
Initial Well Depth (mbgl):		Screen Interval (mbgl):	
Previous Sampling Date:		Previous SWL (m):	
PRE PURGE			
Well Head Condition:		PID Headspace (ppm):	
Total Well Depth (mbgl):		Water Measure Device:	
SWL (mbtoc):		Purge Vol = Water Column x 6 (50mm Well)	
Water Column (m):		Purge Volume (L):	
PHASE SEPARATED HYDROCARBONS(PSH)			
Depth to PSH (mbtoc):		PSH Visually Confirmed:	
PID Headspace (ppm):		PSH Thickness (mm):	
LOW FLOW: PURGING & SAMPLING			
Depth of Pump Inlet:		Fill Timer:	
Pump Pressure Regulator (psi):		Discharge Timer:	
Weather Conditions:		Cycle:	
Pump on time:		Pump off time:	
Weather Conditions:			

WATER QUALITY PARAMETERS

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (uS/cm)	Redox (mV)	DO (mg/L)	pH	Comments (colour, turbidity, odour etc.)
Stabilisation range: 3 consecutive readings				+/- 3%	+/- 10mV	+/- 10%	+/- 0.05	

OTHER COMMENTS: MW4 - NO WATER FOR SAMPLING

est Recharge - 1L/12 hrs

↳ possibly rainwater infiltration

ENVIRONMENTAL INVESTIGATIONS GROUNDWATER SAMPLING FIELD SHEET

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Site Address:	165 Milton Street, Ashbury	Job Number:	Z22232
Client:		Date:	16/2/14
Field Staff:	DS	Well ID:	MW5
Well Location:	East in garden	Round No:	1
WELL BACKGROUND			
Well Installation Date:		Well Stickup (m):	-0.09
Initial Well Depth (mbgl):		Screen Interval (mbgl):	4.784+0.09 BGL
Previous Sampling Date:		Previous SWL (m):	
PRE PURGE			
Well Head Condition:		PID Headspace (ppm):	
Total Well Depth (mbgl):	7.784 +0.09	Water Measure Device:	
SWL (mbtoc):	3.194	Purge Vol = Water Column x 6 (50mm Well)	
Water Column (m):	4.59	Purge Volume (L):	
PHASE SEPARATED HYDROCARBONS(PSH)			
Depth to PSH (mbtoc):		PSH Visually Confirmed:	
PID Headspace (ppm):		PSH Thickness (mm):	
LOW FLOW: PURGING & SAMPLING			
Depth of Pump Inlet:	4.950 mbtoc	Fill Timer:	10
Pump Pressure Regulator (psi):	40	Discharge Timer:	5
Weather Conditions:	Rain	Cycle:	CPM 4
Pump on time:		Pump off time:	
Weather Conditions:			

WATER QUALITY PARAMETERS

Time	Volume (L)	SWL (mbtoc)	Temp (°C)	EC (uS/cm)	Redox (mV)	DO (mg/L)	pH	Comments (colour, turbidity, odour etc.)
10:43	2	3.205	17.6	1360	92	4.34	5.77	Brown, high sediment, fine grained, poor clarity, mild sheen, slight HC odour.
Stabilisation range: 3 consecutive readings				+/- 3%	+/- 10mV	+/- 10%	+/- 0.05	

OTHER COMMENTS:

ThermoFisher SCIENTIFIC

The world leader in serving science

RENTALS

Equipment Report – Solinst Model 122 Interface Meter

This Meter has been performance checked / calibrated* as follows:

Cleaned/Tested	**Pass?**
Probe	
Tape/Reel	8.5

☐ Performance Test & Battery Voltage Check (8.5 v) 8.0v minimum

Date: 11/07/2014 Checked by: Dave O'Neill

Signed: Dav

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Received	Returned	Item
☑	☐	☐	Operations check OK
☑	☐	☐	Plastic Box / Bag
☑	☐	☐	Spare 9V Battery Qty 2
☒	☐	☐	Probe Cleaning Brush
☒	☐	☐	Decon
☑	☐	☐	Instruction leaflet
☑	☐	☐	Tape Guide
☐	☐	☐	

Processors Signature/ Initials SR

Quote Reference	CS000977	Condition on return
Customer Ref		
Equipment ID	S122605F	
Equipment serial no.	211634	
Return Date	/ /	
Return Time		

ThermoFisher SCIENTIFIC

The world leader in serving science

RENTALS

Equipment Certification Report – TPS 90FLMV Water Quality Meter

This Water Quality Meter has been performance checked and calibrated as follows:

Sensor	Concentration	Span 1	Span 2	Traceability Lot #	Pass?
pH	7.00H / pH 4.00	7,00 pH	4,00 pH	/	☑
Conductivity	2.76mS/cm	0,00 mS/cm	2,76 mS/cm		☑
TDS	36 ppk	0,0 ppk	36 ppk		☑
Dissolved Oxygen	Sodium Sulphite / Air	0,00 ppm in Sodium Sulphite	9,09 ppm Saturation in Air		☑

Check only

Redox (ORP) *	Electrode operability test	240mV ✓ +/- 10%	233 mV		☑

* This meter uses an Ag/AgCl ORP electrode. To convert readings to SHE (Standard Hydrogen Electrode), add 199mV to the mV reading.

☑ Battery Status 8,29 (min 7.2V)
☐ Electrical Safety Tag attached (AS/NZS 3760)

☑ Temperature 19,7 °C
☐ Electrodes Cleaned and checked

Tag No: TFR014

Valid to: 30/09/2014

Date: 15/07/2014

Signed: Sijo Reposie

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $30 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Returned	Item
☑	☐	90FLMV Unit. Ops check/Battery status: 8,32
☑	☐	pH sensor with wetting cap, 5m
☑	☐	Conductivity/TDS/Temperature K=10 sensor, 5m
☑	☐	Dissolved oxygen YSI5739 sensor with wetting cap, 5m
☑	☐	Redox (ORP) sensor with wetting cap, 5m
☑	☐	Power supply 240V to 12V DC 200mA
☑	☐	Instruction Manual
☑	☐	Quick Guide
☑	☐	Syringe with storage solution for pH and ORP sensors
☑	☐	Carry Case
☑	☐	Check to confirm electrical safety (tag must be valid)

Date: 15/07/2014

Signed: Sijo Reposie

TFS Reference	3000977	Return Date:	/ /
Customer Reference		Return Time:	
Equipment ID	90FLMV SD	Condition on return:	
Equipment Serial No.	S1649		

"We do more than give you great equipment… We give you great solutions!"

Phone: (Free Call) 1300 735 295		Fax: (Free Call) 1800 675 123		Email: RentalsAU@Thermofisher.com
Melbourne Branch 5 Caribbean Drive, Scoresby 3179	Sydney Branch Level 1, 4 Talavera Road, North Ryde 2113	Adelaide Branch 27 Beulah Road, Norwood, South Australia 5067	Brisbane Branch Unit 2/5 Ross St Newstead 4006	Perth Branch 121 Beringarra Ave Malaga WA 6090

ThermoFisher SCIENTIFIC

Equipment Report – Micropurge Kit (MP15)

This system has been performance checked as follows:

Sample Pro Pump		
☑ Components Cleaned / checked	Ops check	
☑ MP15 Controller	☑ Included in kit	☐ Not included in kit
☑ Components Cleaned / checked	Ops check	
☑ Battery check – On/Off	Flow response	

Date: 15/07/2014 Checked by: SERGIO NAPOLITANO

Signed: firma Napolitano

Please check that the following items are received and that all items are cleaned and decontaminated before return. A minimum $20 cleaning / service / repair charge may be applied to any unclean or damaged items. Items not returned will be billed for at the full replacement cost.

Sent	Received	Returned	Item
✓	☐	☐	MP15 Control & Power Pack
✓	☐	☐	CO2 cylinder (installed in MP15 backpack)
✓	☐	☐	2 Stage gas regulator
✓	☐	☐	Spanner or shifter
✓	☐	☐	Quick Start Guide
✓	☐	☐	MP15 Users Guide + Pump operating instructions
✓	☐	☐	Sample Pro Stainless Steel Pump ID: QSP6PSK
✓	☐	☐	2x Bladder
✓	☐	☐	Flow cell ID: EFC500SJ
✓	☐	☐	Stainless Steel Hanger Cable 45 m
✓	☐	☐	Spare CO2 Cylinders, quantity: 2
✓	☐	☐	Gas Cylinder CO2 - D Size ID: Co_2 ; Co_2 ; Co_2
✓	☐	☐	Maintenance kit (O rings, fittings, SS check ball, collett & screen if applicable)

Processors Signature/ Initials SR

EE Quote Reference	CS 000977	Condition on return
Customer Ref		
Equipment ID	QMP 15 SD	
Equipment serial no.		
Return Date	/ /	
Return Time		

APPENDIX H
Chain of Custody and Sample Receipt Forms

Sheet 1 of 2

Site: 165 Milton St. Ashbury NSW

Project ID: E22232

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date:	Sampling Time:	Sample Matrix: WATER	SOIL	COMPOSITE	OTHER	Analysis: Heavy Metals A	Heavy Metals B	TRH / BTEX	TRH + Silica Gel Cleanup	PAHs	OCPs / PCBs / OPPs	TRH (C_{10} - C_{36}) only	Asbestos	VOCs	sPOCAs	pH (1:5)	EC (1:5)		HOLD not marked X
BH1-1	1	J ZnB	24.6.14	Am/Pm		X			X		X		X	X		X						
BH2-1	2	✓				X			X		X		X	X		X						
-2		J				X																
-3						X																
-4		↓				X																
BH3-1	3	J ZnB				X			X		X		X	X		X						
-2	4	↓				X			X		X		X	X		X						
-3		↓				X																
-4		J				X																
-5		↓				X																
BH6-1	5	J ZnB				X			X		X		X	X		X						
-2		↓				X																
-3		↓	↓	↓		X																

RECEIVED
25 JUN 2014
SB129159

Environmental Investigations Australia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street
Pyrmont NSW 2009
Ph: 9516 0722
service@eiaustralia.com.au

Comments:

A Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc

B Antimony, Barium, Beryllium, Cobalt, Manganese, Tin, Vanadium

C Arsenic, Cadmium, Chromium, Lead, Mercury, Nickel

Laboratory Turnaround:

- ☐ Same Day ☐ 24 Hours
- ☐ 48 Hours ☐ 72 Hours
- ☑ Standard
- ☐ Other _____

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler Name: E. Shaw (Print) _____ (Signature) Date: 25.6.14

Sampler's Comments: "Batch 1"

Received by: (print & Signature) _____ Date: 25/06 Time: 3.00

IMPORTANT:
PLEASE E-MAIL LABORATORY RESULTS TO:
service@eiaustralia.com.au

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar; S= solvent washed, acid rinsed glass bottle;
P= natural HDPE plastic bottle; VC= glass vial, Teflon Septum; ZLB = Zip-Lock Bag

Sheet 2 of 2

Site: 165 Milton St. Ashbury

Project ID: E22252

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date:	Sampling Time:	WATER	SOIL	COMPOSITE	OTHER	Heavy Metals [A]	Heavy Metals [B]	TRH / BTEX	TRH + Silica Gel Cleanup	PAHs	OCPs / PCBs / OPPs	TRH (C_{10} - C_{36}) only	Asbestos	VOCs	sPOCAs	pH (1:5)	EC (1:5)		Hold not marked X
BH6-4		J	24.06.14	AM/PM		X																
BH7-1	6	J+ZLB		AM/PM		X			X		X		X	X		X						
-2		J				X																
BH8-1	7	J+ZLB				X			X		X		X	X		X						
-2	8	↓				X			X		X		X	X		X						
-3		↓				X																
BH9-1	9	J+ZLB				X			X		X		X	X		X						
-2		J				X																
-3		J				X																
B1	10	J				X			X		X											
RB	11	1xP, 1xS, 2VC			X				X		X											↓

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street
Pyrmont NSW 2009
Ph: 9516 0722
service@eiaustralia.com.au

Comments:

[A] Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc

[B] Antimony, Barium, Beryllium, Cobalt, Manganese, Tin, Vanadium

[C] Arsenic, Cadmium, Chromium, Lead, Mercury, Nickel

Laboratory Turnaround:

- ☐ Same Day ☐ 24 Hours
- ☐ 48 Hours ☐ 72 Hours
- ☑ Standard
- ☐ Other _____

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler Name: E. Short (Print) _____ (Signature) Date: 25.6.14

Sampler's Comments: "Batch 1"

Received by: (print & Signature) _____ Date: 25/06 Time: 3:00

IMPORTANT:
PLEASE E-MAIL LABORATORY RESULTS TO:
service@eiaustralia.com.au

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar; S= solvent washed, acid rinsed glass bottle;
P= natural HDPE plastic bottle; VC= glass vial, Teflon Septum; ZLB = Zip-Lock Bag

SGS

Job: SE129159

	Matrix	250 JAR	125 JAR	BAG			1L UP P	500 UP P	250 ZnAcetate P	250 / 500 NaOH BP	125 / 250 UP P	125 / 250 Metal Total*	125 / 250 Metal Filtered*	125 HCl P	1L UP AG	500 / 1L H_2SO_4 AG	125 / 250 H_2SO_4 P	100 / 200 UP AG	40 NaThio GV	250 UP OPAQUE P	500 NaThio STERILE P	200 NaThio STERILE P						Storage* Location	Bottles Supplied By	Comment	Cooling Method
																														Cooler
1-9	Soil	1		1																								S24-425	ASS	Soil Freq/100g	Temp
10	"	1																										"	"	"	3.7
11	W												1		1				2									W207	"	"	Good Order
																															(Y) / N
																															Clearly Labelled
																															(Y) / N
									13 Soil on hold																						Correct Pres.
																															(Y) / N
																															No Head-space
																															(Y) N / NA
																															Sufficient Vol
																															(Y) / N
																															Doc Date
																															25/0C
																															Doc Type
																															COC
																															Complete Docs
																															(Y) / N
																															Requested TAT

SAMPLE RECEIPT ADVICE

SE129159

CLIENT DETAILS

Contact	Earin Short
Client	Environmental Investigations
Address	Suite 6.01, 55 Miller Street NSW 2009
Telephone	02 9516 0722
Facsimile	02 9516 0741
Email	earin.short@eiaustralia.com.au
Project	**E22232 - 165 Milton St - Ashbury-Batch 1**
Order Number	**E22232**
Samples	11

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Wed 25/6/2014
Report Due	Mon 7/7/2014
SGS Reference	**SE129159**

SUBMISSION DETAILS

This is to confirm that 11 samples were received on Wednesday 25/6/2014. Results are expected to be ready by Monday 7/7/2014. Please quote SGS reference SE129159 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	10 Soils & 1 Water	Type of documentation received	COC
Date documentation received	30/6/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3.7°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

COMMENTS

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE129159

CLIENT DETAILS

Client Environmental Investigations

Project E22232 - 165 Milton St - Ashbury-Batch 1

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in	PCBs in Soil	Total Recoverable Metals in Soil by ICPOES from	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH1-1	28	13	25	11	7	9	12	8
002	BH2-1	28	13	25	11	7	9	12	8
003	BH3-1	28	13	25	11	7	9	12	8
004	BH3-2	28	13	25	11	7	9	12	8
005	BH6-1	28	13	25	11	7	9	12	8
006	BH7-1	28	13	25	11	7	9	12	8
007	BH8-1	28	13	25	11	7	9	12	8
008	BH8-2	28	13	25	11	7	9	12	8
009	BH9-1	28	13	25	11	7	9	12	8
010	B1	-	-	-	-	7	9	12	8

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details.
Testing as per this table shall commence immediately unless the client intervenes with a correction.

SAMPLE RECEIPT ADVICE

SE129159

CLIENT DETAILS

Client Environmental Investigations

Project E22232 - 165 Milton St - Ashbury-Batch 1

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	BH1-1	2	1	1	-	-	-
002	BH2-1	2	1	1	-	-	-
003	BH3-1	2	1	1	-	-	-
004	BH3-2	2	1	1	-	-	-
005	BH6-1	2	1	1	-	-	-
006	BH7-1	2	1	1	-	-	-
007	BH8-1	2	1	1	-	-	-
008	BH8-2	2	1	1	-	-	-
009	BH9-1	2	1	1	-	-	-
010	B1	-	1	1	-	-	-
011	RB	-	-	-	9	12	8

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details.
Testing as per this table shall commence immediately unless the client intervenes with a correction.

SAMPLE RECEIPT ADVICE

SE129159

CLIENT DETAILS

Client Environmental Investigations

Project E22232 - 165 Milton St - Ashbury-Batch 1

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	Trace Metals (Dissolved) in Water by ICPMS
011	RB	1	7

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details.
Testing as per this table shall commence immediately unless the client intervenes with a correction.

Sheet 1 of 1

Site: 165 Milton St. Ashbury NSW

Project ID: E22232

Laboratory: **Envirolab Services**
12 Ashley Street
CHATSWOOD NSW 2067
P: 02 9910 6200

Sample ID	Laboratory ID	Container Type	Sampling Date:	Sampling Time:	WATER	SOIL	COMPOSITE	OTHER	Heavy Metals [A]	TPH / BTEX	PAHs	OCPs / PCBs / OPPs	TPH (C_{10} - C_{36}) only	Asbestos	VOCs	sPOCAs	pH (1:5)	EC (1:5)	Peroxid PH
I1	①	1J	24.6.14	AM		X			X	X									

Envirolab Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200

Job No: 112115

Date Received: 25/6/14.
Time Received: 13:30
Received by:
Temp: Cool/Ambient
Cooling: Ice/Icepack
Security: Intact/Broken/None

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street
Pyrmont NSW 2009
Ph: 9516 0722
service@eiaustralia.com.au

Comments:
[A] Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc

Laboratory Turnaround:
- ☐ Same Day
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 72 Hours
- ☑ Standard
- ☐ Other _____

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler Name: E. Short (Print) E.S (Signature) Date: 25.6.14

Sampler's Comments:

Received by: (print & Signature) Kevin Date: 25/6/14 Time: 13:30

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar, S= solvent washed, acid rinsed glass bottle,
P= natural HDPE plastic bottle, VC= glass vial, Teflon Septum.

IMPORTANT:
PLEASE E-MAIL LABORATORY RESULTS TO:
service@eiaustralia.com.au

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Environmental Investigations
Suite 6.01, 55 Miller Street
Pyrmont NSW 2009

ph: 9516 0722
Fax: 9518 5088

Attention: Earin Short

Sample log in details:

Your reference:	**E22232, Ashbury**
Envirolab Reference:	**112115**
Date received:	25/06/2014
Date results expected to be reported:	**2/07/14**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 Soil
Turnaround time requested:	Standard
Temperature on receipt (°C)	17.6
Cooling Method:	Ice Pack
Sampling Date Provided:	YES

Comments:

If there is sufficient sample after testing, samples will be held for the following time frames from date of receipt of samples:
Water samples - 1 month
Soil and other solid samples - 2 months
Samples collected in canisters - 1 week. Canisters will then be cleaned.
All other samples are not retained after analysis
If you require samples to be retained for longer periods then retention fees will apply as per our pricelist.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

Sheet 1 of 2

Site: 165 Milton St. Ashbury NSW

Project ID: E22232

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date:	Sampling Time:	Sample Matrix: WATER	SOIL	COMPOSITE	OTHER	Analysis: Heavy Metals [A]	Heavy Metals [B]	TRH / BTEX	TRH + Silica Gel Cleanup	PAHs	OCPs / PCBs / OPPs	TRH (C_{10} - C_{36}) only	Asbestos	VOCs	sPOCAs	pH (1:5)	EC (1:5)	HOLD
BH10-1	1	J $2LB	25.6.14	Am/Pm		X			X		X		X	X		X					
-2	2	↓				X			X		X		X	X		X					
-3		J				X															
-4		↓				X															
BH11-1	3	J $2LB				X			X		X		X	X		X					
-2		J				X															
-3		↓				X															
BH12-1	4	J $2LB				X			X		X		X	X		X					
-2		J				X															
BH13-1	5	J $2LB				X			X		X		X	X		X					
-2	6	↓				X			X		X		X	X		X					
-3		J				X															
-4		J				X															

RECEIVED
30 JUN 2014
SE129158

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street
Pyrmont NSW 2009
Ph: 9516 0722
service@eiaustralia.com.au

Comments:

[A] Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc

[B] Antimony, Barium, Beryllium, Cobalt, Manganese, Tin, Vanadium

[C] Arsenic, Cadmium, Chromium, Lead, Mercury, Nickel

Laboratory Turnaround:

- ☐ Same Day ☐ 24 Hours
- ☐ 48 Hours ☐ 72 Hours
- ☑ Standard
- ☐ Other _____

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler Name: E. Short (Print) E. Short (Signature) Date: 30.6.14

Sampler's Comments: "Batch 2"

Received by: (print & Signature) Date: 30/06 Time: 12.45

IMPORTANT:
PLEASE E-MAIL LABORATORY RESULTS TO:
service@eiaustralia.com.au

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar; S= solvent washed, acid rinsed glass bottle;
P= natural HDPE plastic bottle; VC= glass vial, Teflon Septum; ZLB = Zip-Lock Bag

Sheet 2 of 2

Site: 165 Milton St. Ashbury NSW

Project ID: E22232

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date:	Sampling Time:	WATER	SOIL	COMPOSITE	OTHER	Heavy Metals [A]	Heavy Metals [B]	TRH / BTEX	TRH + Silica Gel Cleanup	PAHs	OCPs / PCBs / OPPs	TRH (C_{10} - C_{36}) only	Asbestos	VOCs	sPOCAs	pH (1:5)	EC (1:5)	HOLD
BH13-5		J	25.6.14	Am/pm		X															X
BH14-1		J	↓	↓		X															X
-2		↓	↓	↓		X															X
A1	7	ZLB	↓	↓				X								X					

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street
Pyrmont NSW 2009
Ph: 9516 0722
service@eiaustralia.com.au

Comments:

[A] Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc

[B] Antimony, Barium, Beryllium, Cobalt, Manganese, Tin, Vanadium

[C] Arsenic, Cadmium, Chromium, Lead, Mercury, Nickel

Laboratory Turnaround:

- ☐ Same Day ☐ 24 Hours
- ☐ 48 Hours ☐ 72 Hours
- ☑ Standard
- ☐ Other _____

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler Name: E. Short (Print) E. S (Signature) Date: 30.6.14

Sampler's Comments: "Batch 2"

Received by: (print & Signature) Date: 30/06 Time: 12:45

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar; S= solvent washed, acid rinsed glass bottle;
P= natural HDPE plastic bottle; VC= glass vial, Teflon Septum; ZLB = Zip-Lock Bag

IMPORTANT:
PLEASE E-MAIL LABORATORY RESULTS TO:
service@eiaustralia.com.au

SGS

Job: SB129158

	Matrix	250 JAR	125 JAR	BAG			1L UP P	500 UP P	250 ZnAcetate P	250 / 500 NaOH BP	125 / 250 UP P	125 / 250 Metal Total*	125 / 250 Metal Filtered*	125 HCl P	1L UP AG	500 / 1L H_2SO_4 AG	125 / 250 H_2SO_4 P	100 / 200 UP AG	40 NaThio GV	250 UP OPAQUE P	500 NaThio STERILE P	200 NaThio STERILE P					Storage* Location	Bottles Supplied By	Comment	Cooling Method
																													Cooler
1-6	Soil	1		1																						S424, ASB	Sug	Foil/ 75g	Temp
7	Material			1																						ASB	~	Small	3.7
																													Good Order
																													(Y) N
																													Clearly Labelled
								10 Soil on hold																					(Y) N
																													Correct Pres.
																													(Y) / N
																													No Head-space
																													(Y) N / NA
																													Sufficient Vol
																													(Y) / N
																													Doc Date
																													30/06
																													Doc Type
																													COC
																													Complete Docs
																													(Y) / N
																													Requested TAT

SAMPLE RECEIPT ADVICE

SE129158

CLIENT DETAILS

Contact	Earin Short
Client	Environmental Investigations
Address	Suite 6.01, 55 Miller Street NSW 2009
Telephone	02 9516 0722
Facsimile	02 9516 0741
Email	earin.short@eiaustralia.com.au
Project	**E22232 - 165 Milton St - Ashbury**
Order Number	**E22232**
Samples	7

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 30/6/2014
Report Due	Mon 7/7/2014
SGS Reference	**SE129158**

SUBMISSION DETAILS

This is to confirm that 7 samples were received on Monday 30/6/2014. Results are expected to be ready by Monday 7/7/2014. Please quote SGS reference SE129158 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	6 Soils & 1 Material	Type of documentation received	COC
Date documentation received	30/6/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3.7°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

COMMENTS

10 soil samples, which have/have not been marked for analyses on the COC, have been placed on hold. These samples will not be processed.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE129158

CLIENT DETAILS

Client Environmental Investigations

Project E22232 - 165 Milton St - Ashbury

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in	PCBs in Soil	Total Recoverable Metals in Soil by ICPOES from	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH10-1	28	13	25	11	7	9	12	8
002	BH10-2	28	13	25	11	7	9	12	8
003	BH11-1	28	13	25	11	7	9	12	8
004	BH12-1	28	13	25	11	7	9	12	8
005	BH13-1	28	13	25	11	7	9	12	8
006	BH13-2	28	13	25	11	7	9	12	8

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details.
Testing as per this table shall commence immediately unless the client intervenes with a correction.

SAMPLE RECEIPT ADVICE

SE129158

CLIENT DETAILS

Client Environmental Investigations

Project E22232 - 165 Milton St - Ashbury

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre ID in bulk materials	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	BH10-1	-	2	1	1
002	BH10-2	-	2	1	1
003	BH11-1	-	2	1	1
004	BH12-1	-	2	1	1
005	BH13-1	-	2	1	1
006	BH13-2	-	2	1	1
007	A1	1	-	-	-

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details.
Testing as per this table shall commence immediately unless the client intervenes with a correction.

Sheet 1 of 2

Site: MILTON ST ASHBURY

Project ID: E22232

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date:	Sampling Time:	WATER	SOIL	COMPOSITE	OTHER	Heavy Metals [A]	Heavy Metals [B]	TRH / BTEX	TRH + Silica Gel Cleanup	PAHs	OCPs / PCBs / OPPs	TRH (C_{10} - C_{36}) only	Asbestos	VOCs	sPOCAs	pH (1:5)	EC (1:5)	HOLD
BH1-ASB		ZLB	27/6/14	9am		/															X
BH1-1		J	"	"		/															X
BH1-2	1	J	"	"		/			X		X		X	X							
BH1-3	2	J	"	"		/			X		X		X	X							
BH1-4		J	"	"		/															X
BH1-5		J	"	"		/															X
BH1-6		J	"	"		/															X
BH1-7	3	J	"	"		/					X										
BH5-ASB	4	ZLB	26/6/14	8am		/										X					
BH5-1	5	J	"	"		/			X		X		X	X							
BH5-2	6	J	"	"		/			X		X		X	X							
BH5-3		J	"	"		/															
BH5-4		J	"	"		/															

RECEIVED
01 JUL 2014
SE 129214

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street
Pyrmont NSW 2009
Ph: 9516 0722
service@eiaustralia.com.au

Comments:
[A] Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc
[B] Antimony, Barium, Beryllium, Cobalt, Manganese, Tin, Vanadium
[C] Arsenic, Cadmium, Chromium, Lead, Mercury, Nickel

Laboratory Turnaround:
☐ Same Day ☐ 24 Hours
☐ 48 Hours ☐ 72 Hours
☐ Standard
☐ Other _____

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler Name: Alan Morrow for E. Short (Print) — Alan Morrow (Signature) — Date: 27/6/14 30.6.14

Sampler's Comments: " Batch 3 "

Received by: (print & Signature) — Date: 01/07 — Time: 12:30

IMPORTANT:
PLEASE E-MAIL LABORATORY RESULTS TO:
service@eiaustralia.com.au

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar; S= solvent washed, acid rinsed glass bottle;
P= natural HDPE plastic bottle; VC= glass vial, Teflon Septum; ZLB = Zip-Lock Bag

Sheet 2 of 2

Site: MILTON ST ASHBURY

Project ID: E22232

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date:	Sampling Time:	WATER	SOIL	COMPOSITE	OTHER	Heavy Metals [A]	Heavy Metals [B]	TRH / BTEX	TRH + Silica Gel Cleanup	PAHs	OCPs / PCBs / OPPs	TRH (C_{10} - C_{36}) only	Asbestos	VOCs	sPOCAs	pH (1:5)	EC (1:5)	HOLD	
BH5-5		J	26/6/14	8am		/															X	

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street
Pyrmont NSW 2009
Ph: 9516 0722
service@eiaustralia.com.au

Comments:

[A] Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc

[B] Antimony, Barium, Beryllium, Cobalt, Manganese, Tin, Vanadium

[C] Arsenic, Cadmium, Chromium, Lead, Mercury, Nickel

Laboratory Turnaround:

- ☐ Same Day
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 72 Hours
- ☐ Standard
- ☐ Other _____

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler Name: Alan Morrow for E. Short (Print) — Signature — Date: 27/6/14 Jun 14

Sampler's Comments: "Batch 3"

Received by: (print & Signature) | Date: | Time:

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar; S= solvent washed, acid rinsed glass bottle;
P= natural HDPE plastic bottle; VC= glass vial, Teflon Septum; ZLB = Zip-Lock Bag

IMPORTANT:
PLEASE E-MAIL LABORATORY RESULTS TO:
service@eiaustralia.com.au

SGS

Job: SE129214

	Matrix	250 JAR	125 JAR	BAG			1L UP P	500 UP P	250 ZnAcetate P	250 / 500 NaOH BP	125 / 250 UP P	125 / 250 Metal Total*	125 / 250 Metal Filtered*	125 HCl P	1L UP AG	500 / 1L H_2SO_4 AG	125 / 250 H_2SO_4 P	100 / 200 UP AG	40 NaThio GV	250 UP OPAQUE P	500 NaThio STERILE P	200 NaThio STERILE P						Storage Location	Bottles Supplied By	Comment	Cooling Method
																														Cooler
1-3,5,6	Soil	1																									S432	Sas	Fuel	Temp
4	"			1																							ASB	"	75g	3.7
																														Good Order
																														(Y) / N
																														Clearly Labelled
									8 Soil on hold																					(Y) / N
																														Correct Pres.
																														(Y) / N
																														No Head-space
																														Y / N / NA
																														Sufficient Vol
																														(Y) / N
																														Doc Date
																														01/07
																														Doc Type
																														COC
																														Complete Docs
																														(Y) / N
																														Requested TAT

SAMPLE RECEIPT ADVICE

SE129214

CLIENT DETAILS

Contact	Earin Short
Client	Environmental Investigations
Address	Suite 6.01, 55 Miller Street NSW 2009
Telephone	02 9516 0722
Facsimile	02 9516 0741
Email	earin.short@eiaustralia.com.au
Project	**E22232 - Milton St - Ashbury**
Order Number	**E22232**
Samples	6

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Tue 1/7/2014
Report Due	Tue 8/7/2014
SGS Reference	**SE129214**

SUBMISSION DETAILS

This is to confirm that 6 samples were received on Tuesday 1/7/2014. Results are expected to be ready by Tuesday 8/7/2014. Please quote SGS reference SE129214 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	6 Soils	Type of documentation received	COC
Date documentation received	1/7/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3.7°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

COMMENTS

8 samples have been placed on hold as no tests have been assigned for them by the client. These samples will not be processed.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx as at the date of this document.
Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE129214

CLIENT DETAILS

Client Environmental Investigations

Project E22232 - Milton St - Ashbury

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in	PCBs in Soil	Total Recoverable Metals in Soil by ICPOES from	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH1-2	28	13	25	11	7	9	12	8
002	BH1-3	28	13	25	11	7	9	12	8
003	BH1-7	-	-	-	-	-	9	12	8
005	BH5-1	28	13	25	11	7	9	12	8
006	BH5-2	28	13	25	11	7	9	12	8

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details.
Testing as per this table shall commence immediately unless the client intervenes with a correction.

SAMPLE RECEIPT ADVICE

SE129214

CLIENT DETAILS

Client Environmental Investigations

Project E22232 - Milton St - Ashbury

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	BH1-2	-	1	1
002	BH1-3	-	1	1
003	BH1-7	-	-	1
004	BH5-ASB_ZLB	2	-	-
005	BH5-1	-	1	1
006	BH5-2	-	1	1

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details.
Testing as per this table shall commence immediately unless the client intervenes with a correction.

Sheet 1 of 1

Site: 165 MILTON STREET, ASHBURY

Project ID: E22232

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date:	Sampling Time:	WATER	SOIL	COMPOSITE	OTHER	Heavy Metals [A]	Heavy Metals [B]	TRH / BTEX	TRH + Silica Gel Cleanup	PAHs	OCPs / PCBs / OPPs	TRH (C_{10} - C_{36}) only	Asbestos	VOCs	sPOCAs	pH (1:5)	EC (1:5)
BH4-1	1	J, ZLB	7/7/14			X			X		X		X	X		X	X			
BH4-2		J																		
BH4-3	2	J							X		X		X							
BH4-4		J																		

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07 JUL 2014
SB129375

Comments:

[A] Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc

[B] Antimony, Barium, Beryllium, Cobalt, Manganese, Tin, Vanadium

[C] Arsenic, Cadmium, Chromium, Lead, Mercury, Nickel

Laboratory Turnaround:

- ☐ Same Day
- ☐ 24 Hours
- ☐ 48 Hours
- ☐ 72 Hours
- ☒ Standard
- ☐ Other _____

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler Name: DANIEL SOLIMAN (Print) Signature: _____ Date: 7/7/14

Sampler's Comments:

Received by: (print & Signature) _____ Date: 07/07 Time: 1:00

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar; S= solvent washed, acid rinsed glass bottle;
P= natural HDPE plastic bottle; VC= glass vial, Teflon Septum; ZLB = Zip-Lock Bag

IMPORTANT:
PLEASE E-MAIL LABORATORY RESULTS TO:
service@eiaustralia.com.au

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street
Pyrmont NSW 2009
Ph: 9516 0722
service@eiaustralia.com.au

SGS

Job: SE129375

	Matrix	250 JAR	125 JAR	BAG			1L UP P	500 UP P	250 ZnAcetate P	250 / 500 NaOH BP	125 / 250 UP P	125 / 250 Metal Total*	125 / 250 Metal Filtered*	125 HCl P	1L UP AG	500 / 1L H_2SO_4 AG	125 / 250 H_2SO_4 P	100 / 200 UP AG	40 NaThio GV	250 UP OPAQUE P	500 NaThio STERILE P	200 NaThio STERILE P					Storage Location	Bottles Supplied By	Comment	Cooling Method
1	Soil	1	-	1																						SH66, ASB	Sig	Feel/100g	Cooler
2	"	1																								"	"	"	3.6
																													Good Order
																													(Y) / N
																													Clearly Labelled
									2 Soil on hold																				(Y) / N
																													Correct Pres.
																													(Y) / N
																													No Head-space
																													(Y) / N / NA
																													Sufficient Vol
																													(Y) / N
																													Doc Date
																													07/07
																													Doc Type
																													COC
																													Complete Docs
																													(Y) / N
																													Requested TAT

SAMPLE RECEIPT ADVICE

SE129375

CLIENT DETAILS

Contact	Daniel Soliman
Client	Environmental Investigations
Address	Suite 6.01, 55 Miller Street NSW 2009
Telephone	02 9516 0722
Facsimile	02 9516 0741
Email	daniel.soliman@eiaustralia.com.au
Project	**E22232 - 165 Milton Street, Ashbury**
Order Number	**E22232**
Samples	2

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Mon 7/7/2014
Report Due	Mon 14/7/2014
SGS Reference	**SE129375**

SUBMISSION DETAILS

This is to confirm that 2 samples were received on Monday 7/7/2014. Results are expected to be ready by Monday 14/7/2014. Please quote SGS reference SE129375 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	2 Soils	Type of documentation received	COC
Date documentation received	7/7/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3.6°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

COMMENTS

2 soil samples, which were not marked for analyses on the COC, have been placed on hold. These samples will not be processed.

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE129375

CLIENT DETAILS

Client Environmental Investigations

Project E22232 - 165 Milton Street, Ashbury

SUMMARY OF ANALYSIS

No.	Sample ID	OC Pesticides in Soil	OP Pesticides in Soil	PAH (Polynuclear Aromatic Hydrocarbons) in	PCBs in Soil	Total Recoverable Metals in Soil by ICPOES from	TRH (Total Recoverable Hydrocarbons) in Soil	VOC's in Soil	Volatile Petroleum Hydrocarbons in Soil
001	BH4-1	28	13	25	11	7	9	79	8
002	BH4-3	-	-	25	-	7	9	12	8

CONTINUED OVERLEAF

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details.
Testing as per this table shall commence immediately unless the client intervenes with a correction.

SAMPLE RECEIPT ADVICE

SE129375

CLIENT DETAILS

Client Environmental Investigations

Project E22232 - 165 Milton Street, Ashbury

SUMMARY OF ANALYSIS

No.	Sample ID	Fibre Identification in soil	Mercury in Soil	Moisture Content
001	BH4-1	2	1	1
002	BH4-3	-	1	1

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details.
Testing as per this table shall commence immediately unless the client intervenes with a correction.

Sheet 1 of 1

Site: 165 Milton St Ashbury

Project ID: E22232

Laboratory: SGS Australia
Unit 16, 33 Maddox Street,
ALEXANDRIA NSW 2015
P: 02 8594 0400 F: 02 8594 0499

Sample ID	Laboratory ID	Container Type	Sampling Date:	Sampling Time:	WATER	SOIL	COMPOSITE	OTHER	Heavy Metals [A]	Heavy Metals [B]	TRH / BTEX	TRH + Silica Gel Cleanup	PAHs	OCPs / PCBs / OPPs	TRH (C_{10} - C_{36}) only	Asbestos	VOCs	sPOCAs	pH (1:5)	EC (1:5)		
MW1-1	1	1xS 2xV HP	16.7.14		X				X		X		X				X					
MW2-1	2	↓	↓		↓				↓		↓		↓				↓					
MW3-1	3																					
MW5-1	4																					
MW8-1	5	↓	↓		↓				↓		↓											

RECEIVED
17 JUL 2014
SB129745

Environmental Investigations Australia
Contamination | Remediation | Geotechnical

Suite 6.01, 55 Miller Street
Pyrmont NSW 2009
Ph: 9516 0722
service@eiaustralia.com.au

Comments:

[A] Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc

[B] Antimony, Barium, Beryllium, Cobalt, Manganese, Tin, Vanadium

[C] Arsenic, Cadmium, Chromium, Lead, Mercury, Nickel

Laboratory Turnaround:

- ☐ Same Day ☐ 24 Hours
- ☐ 48 Hours ☐ 72 Hours
- ☒ Standard
- ☐ Other _____

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler Name: SARI ERU (Print) _____ (Signature) Date: 17.7.14

Sampler's Comments:

Received by: (print & Signature) _____ Date: 17/07 Time: 4:15

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar; S= solvent washed, acid rinsed glass bottle;
P= natural HDPE plastic bottle; VC= glass vial, Teflon Septum; ZLB = Zip-Lock Bag

IMPORTANT:
PLEASE E-MAIL LABORATORY RESULTS TO:
service@eiaustralia.com.au

SGS

Job: SB129745

Matrix	250 JAR	125 JAR	BAG			1L UP P	500 UP P	250 ZnAcetate P	250 / 500 NaOH BP	125 / 250 UP P	125 / 250 Metal Total*	125 / 250 Metal Filtered*	125 HCl P	1L UP AG	500 / 1L H_2SO_4 AG	125 / 250 H_2SO_4 P	100 / 200 UP AG	40 NaThio GV	250 UP OPAQUE P	500 NaThio STERILE P	200 NaThio STERILE P						Storage Location	Bottles Supplied By	Comment	Cooling Method
1-5 Water												1		1				2									W096-097	SGS	Fwd	Cool
																													Temp
																													3.7
																													Good Order
																													(Y) N
																													Clearly Labelled
																													(Y)/ N
																													*Correct Pres.
																													(Y)/ N
																													No Head-space
																													(Y) N / NA
																													Sufficient Vol
																													(Y)/ N
																													Doc Date
																													17/07
																													Doc Type
																													COC
																													Complete Docs
																													(Y)/ N
																													Requested TAT

SAMPLE RECEIPT ADVICE

SE129745

CLIENT DETAILS

Contact	Sari Eru
Client	Environmental Investigations
Address	Suite 6.01, 55 Miller Street NSW 2009
Telephone	02 9516 0722
Facsimile	02 9516 0741
Email	sari.eru@eiaustralia.com.au
Project	**E22232 - 165 Milton St - Ashbury**
Order Number	**E22232**
Samples	5

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	+61 2 8594 0400
Facsimile	+61 2 8594 0499
Email	au.environmental.sydney@sgs.com
Samples Received	Thu 17/7/2014
Report Due	Thu 24/7/2014
SGS Reference	**SE129745**

SUBMISSION DETAILS

This is to confirm that 5 samples were received on Thursday 17/7/2014. Results are expected to be ready by Thursday 24/7/2014. Please quote SGS reference SE129745 when making enquiries. Refer below for details relating to sample integrity upon receipt.

Sample counts by matrix	5 Waters	Type of documentation received	COC
Date documentation received	17/7/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3.7°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

Samples will be held for one month for water samples and two months for soil samples from date of report, unless otherwise instructed.

COMMENTS

To the extent not inconsistent with the other provisions of this document and unless specifically agreed otherwise in writing by SGS, all SGS services are rendered in accordance with the applicable SGS General Conditions of Service accessible at http://www.sgs.com/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx as at the date of this document. Attention is drawn to the limitations of liability and to the clauses of indemnification.

SAMPLE RECEIPT ADVICE

SE129745

CLIENT DETAILS

Client Environmental Investigations

Project E22232 - 165 Milton St - Ashbury

SUMMARY OF ANALYSIS

No.	Sample ID	Mercury (dissolved) in Water	PAH (Polynuclear Aromatic Hydrocarbons) in	Trace Metals (Dissolved) in Water by ICPMS	TRH (Total Recoverable Hydrocarbons) in Water	VOCs in Water	Volatile Petroleum Hydrocarbons in Water
001	MW1-1	1	22	7	9	79	8
002	MW2-1	1	22	7	9	79	8
003	MW3-1	1	22	7	9	79	8
004	MW5-1	1	22	7	9	79	8
005	MWB-1	1	-	7	9	12	8

The above table represents SGS Environmental Services' interpretation of the client-supplied Chain Of Custody document.
The numbers shown in the table indicate the number of results requested in each package.
Please indicate as soon as possible should your request differ from these details.
Testing as per this table shall commence immediately unless the client intervenes with a correction.

Sheet 1 of 1

Site: 165 Milton St Ashbury

Project ID: E22232

Laboratory: **Envirolab Services**
12 Ashley Street
CHATSWOOD NSW 2067
P: 02 9910 6200

Sample ID	Laboratory ID	Container Type	Sampling Date:	Sampling Time:	Sample Matrix: WATER	SOIL	COMPOSITE	OTHER	Analysis: Heavy Metals [A]	TPH / BTEX	PAHs	OCPs / PCBs / OPPs	TPH (C_{10} - C_{36}) only	Asbestos	VOCs	sPOCAs	pH (1:5)	EC (1:5)	Peroxid PH			
MW1-1		2xV 1xJ 1xS	16.7.14		X				X	X												

Environmental Investigations Australia
Contamination | Remediation | Geotechnical
Suite 6.01, 55 Miller Street
Pyrmont NSW 2009
Ph: 9516 0722
service@eiaustralia.com.au

Comments:

[A] Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Zinc

ENVIROLAB Services
12 Ashley St
Chatswood NSW 2067
Ph: (02) 9910 6200
Job No: 113265
Date Received: 17/7/14
Time Received: 15:30
Received by: JYH
Cool/Ambient 6.5°C
Ice/Icepack
Broken/None

Laboratory Turnaround:

- ☐ Same Day ☐ 24 Hours
- ☐ 48 Hours ☐ 72 Hours
- ☒ Standard
- ☐ Other _____

Investigator: I attest that these samples were collected in accordance with standard EI field sampling procedures.

Sampler Name: SARI ERM (Print) _____ (Signature) Date: 17.7.14

Sampler's Comments:

Received by: (print & Signature) Date: Time:

Container Type:
J= solvent washed, acid rinsed,Teflon sealed, glass jar, S= solvent washed, acid rinsed glass bottle,
P= natural HDPE plastic bottle, VC= glass vial, Teflon Septum.

IMPORTANT:
PLEASE E-MAIL LABORATORY RESULTS TO:
service@eiaustralia.com.au

Envirolab Services Pty Ltd
ABN 37 112 535 645
12 Ashley St Chatswood NSW 2067
ph 02 9910 6200 fax 02 9910 6201
enquiries@envirolabservices.com.au
www.envirolabservices.com.au

SAMPLE RECEIPT ADVICE

Client:

Environmental Investigations
Suite 6.01, 55 Miller Street
Pyrmont NSW 2009

ph: 9516 0722
Fax: 9518 5088

Attention: Sari Erm

Sample log in details:

Your reference:	**E22232, Ashbury**
Envirolab Reference:	**113265**
Date received:	17/07/2014
Date results expected to be reported:	**24/07/14**

Samples received in appropriate condition for analysis:	YES
No. of samples provided	1 Water
Turnaround time requested:	Standard
Temperature on receipt (°C)	6.5
Cooling Method:	Ice Pack
Sampling Date Provided:	YES

Comments:

If there is sufficient sample after testing, samples will be held for the following time frames from date of receipt of samples:
Water samples - 1 month
Soil and other solid samples - 2 months
Samples collected in canisters - 1 week. Canisters will then be cleaned.
All other samples are not retained after analysis
If you require samples to be retained for longer periods then retention fees will apply as per our pricelist.

Contact details:

Please direct any queries to Aileen Hie or Jacinta Hurst
ph: 02 9910 6200 fax: 02 9910 6201
email: ahie@envirolabservices.com.au or jhurst@envirolabservices.com.au

APPENDIX I
Laboratory Analytical Reports

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Earin Short	Manager	Huong Crawford
Client	Environmental Investigations	Laboratory	SGS Alexandria Environmental
Address	Suite 6.01, 55 Miller Street NSW 2009	Address	Unit 16, 33 Maddox St Alexandria NSW 2015
Telephone	02 9516 0722	Telephone	+61 2 8594 0400
Facsimile	02 9516 0741	Facsimile	+61 2 8594 0499
Email	earin.short@eiaustralia.com.au	Email	au.environmental.sydney@sgs.com
Project	**E22232 - 165 Milton St - Ashbury-Batch 1**	SGS Reference	**SE129159 R0**
Order Number	**E22232**	Report Number	0000086486
Samples	11	Date Reported	07 Jul 2014
		Date Received	25 Jun 2014

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all samples using trace analysis technique.
Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

Jaimie Cheung
Metals Chemist

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Asbestos Analyst

Parameter	Units	LOR	Sample Number: SE129159.001 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH1-1	SE129159.002 Soil 24 Jun 2014 BH2-1	SE129159.003 Soil 24 Jun 2014 BH3-1	SE129159.004 Soil 24 Jun 2014 BH3-2
VOC's in Soil Method: AN433/AN434						
Monocyclic Aromatic Hydrocarbons						
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Polycyclic VOCs						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Surrogates						
Dibromofluoromethane (Surrogate)	%	-	**86**	**72**	**75**	**89**
d4-1,2-dichloroethane (Surrogate)	%	-	**94**	**100**	**94**	**89**
d8-toluene (Surrogate)	%	-	**90**	**107**	**88**	**123**
Bromofluorobenzene (Surrogate)	%	-	**73**	**70**	**74**	**73**
Totals						
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410						
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Surrogates						
Dibromofluoromethane (Surrogate)	%	-	**86**	**72**	**75**	**89**
d4-1,2-dichloroethane (Surrogate)	%	-	**94**	**100**	**94**	**89**
d8-toluene (Surrogate)	%	-	**90**	**107**	**88**	**123**
Bromofluorobenzene (Surrogate)	%	-	**73**	**70**	**74**	**73**

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE129159.001 Soil 24 Jun 2014 BH1-1	SE129159.002 Soil 24 Jun 2014 BH2-1	SE129159.003 Soil 24 Jun 2014 BH3-1	SE129159.004 Soil 24 Jun 2014 BH3-2
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410 (continued)							
VPH F Bands							
Benzene (F0)	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25		<25	<25	<25	<25
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403							
TRH C10-C14	mg/kg	20		<20	<20	<20	<20
TRH C15-C28	mg/kg	45		<45	<45	<45	<45
TRH C29-C36	mg/kg	45		<45	<45	<45	<45
TRH C37-C40	mg/kg	100		<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110		<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210		<210	<210	<210	<210
TRH F Bands							
TRH >C10-C16 (F2)	mg/kg	25		<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90		<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120		<120	<120	<120	<120
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420							
Naphthalene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1		<0.1	<0.1	**0.2**	**0.1**
Anthracene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1		<0.1	<0.1	**0.4**	**0.2**
Pyrene	mg/kg	0.1		<0.1	<0.1	**0.3**	**0.2**
Benzo(a)anthracene	mg/kg	0.1		<0.1	<0.1	**0.2**	**0.1**
Chrysene	mg/kg	0.1		<0.1	<0.1	**0.2**	**0.1**
Benzo(b&j)fluoranthene	mg/kg	0.1		<0.1	<0.1	**0.3**	**0.1**
Benzo(k)fluoranthene	mg/kg	0.1		<0.1	<0.1	**0.1**	<0.1
Benzo(a)pyrene	mg/kg	0.1		<0.1	<0.1	**0.3**	**0.1**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1		<0.1	<0.1	**0.2**	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1		<0.1	<0.1	**0.2**	<0.1
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2		<0.2	<0.2	**0.3**	<0.2
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3		<0.3	<0.3	**0.4**	<0.3
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2		<0.2	<0.2	**0.4**	**0.2**
Total PAH	mg/kg	0.8		<0.8	<0.8	**2.2**	**1.1**

Parameter	Units	LOR	Sample Number: SE129159.001 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH1-1	SE129159.002 Soil 24 Jun 2014 BH2-1	SE129159.003 Soil 24 Jun 2014 BH3-1	SE129159.004 Soil 24 Jun 2014 BH3-2
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 (continued)						
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	**92**	**92**	**96**	**94**
2-fluorobiphenyl (Surrogate)	%	-	**90**	**86**	**92**	**88**
d14-p-terphenyl (Surrogate)	%	-	**94**	**102**	**104**	**102**
OC Pesticides in Soil Method: AN400/AN420						
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**114**	**122**	**120**	**129**
OP Pesticides in Soil Method: AN400/AN420						
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2

Parameter	Units	LOR	Sample Number: SE129159.001 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH1-1	SE129159.002 Soil 24 Jun 2014 BH2-1	SE129159.003 Soil 24 Jun 2014 BH3-1	SE129159.004 Soil 24 Jun 2014 BH3-2
OP Pesticides in Soil Method: AN400/AN420 (continued)						
Surrogates						
2-fluorobiphenyl (Surrogate)	%	-	**90**	**86**	**92**	**88**
d14-p-terphenyl (Surrogate)	%	-	**94**	**102**	**104**	**102**
PCBs in Soil Method: AN400/AN420						
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**114**	**122**	**120**	**129**
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320						
Arsenic, As	mg/kg	3	**4**	**7**	**4**	**9**
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	**2.7**	**4.8**	**17**	**15**
Copper, Cu	mg/kg	0.5	**1.5**	**3.6**	**7.5**	**13**
Lead, Pb	mg/kg	1	**2**	**8**	**16**	**23**
Nickel, Ni	mg/kg	0.5	**16**	**12**	**2.0**	**3.2**
Zinc, Zn	mg/kg	0.5	**7.7**	**14**	**40**	**37**
Mercury in Soil Method: AN312						
Mercury	mg/kg	0.01	<0.01	**0.01**	**0.02**	**0.02**
Fibre Identification in soil Method: AN602						
FibreID						
Asbestos Detected	No unit	-	No	No	No	No

Parameter	Units	LOR	Sample Number: SE129159.001 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH1-1	SE129159.002 Soil 24 Jun 2014 BH2-1	SE129159.003 Soil 24 Jun 2014 BH3-1	SE129159.004 Soil 24 Jun 2014 BH3-2
Fibre Identification in soil Method: AN602 (continued)						
SemiQuant						
Estimated Fibres	%w/w	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Moisture Content Method: AN002						
% Moisture	%	0.5	**7.8**	**9.5**	**10**	**19**
VOCs in Water Method: AN433/AN434						
Monocyclic Aromatic Hydrocarbons						
Benzene	µg/L	0.5	-	-	-	-
Toluene	µg/L	0.5	-	-	-	-
Ethylbenzene	µg/L	0.5	-	-	-	-
m/p-xylene	µg/L	1	-	-	-	-
o-xylene	µg/L	0.5	-	-	-	-
Polycyclic VOCs						
Naphthalene	µg/L	0.5	-	-	-	-
Surrogates						
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-
Totals						
Total Xylenes	µg/L	1.5	-	-	-	-
Total BTEX	µg/L	3	-	-	-	-
Volatile Petroleum Hydrocarbons in Water Method: AN433/AN434/AN410						
TRH C6-C10	µg/L	50	-	-	-	-
TRH C6-C9	µg/L	40	-	-	-	-

Parameter	Units	LOR	Sample Number: SE129159.001 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH1-1	SE129159.002 Soil 24 Jun 2014 BH2-1	SE129159.003 Soil 24 Jun 2014 BH3-1	SE129159.004 Soil 24 Jun 2014 BH3-2
Volatile Petroleum Hydrocarbons in Water Method: AN433/AN434/AN410 (continued)						
Surrogates						
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-
VPH F Bands						
Benzene (F0)	µg/L	0.5	-	-	-	-
TRH C6-C10 minus BTEX (F1)	µg/L	50	-	-	-	-
TRH (Total Recoverable Hydrocarbons) in Water Method: AN403						
TRH C10-C14	µg/L	50	-	-	-	-
TRH C15-C28	µg/L	200	-	-	-	-
TRH C29-C36	µg/L	200	-	-	-	-
TRH C37-C40	µg/L	200	-	-	-	-
TRH C10-C36	µg/L	450	-	-	-	-
TRH C10-C40	µg/L	650	-	-	-	-
TRH F Bands						
TRH >C10-C16 (F2)	µg/L	60	-	-	-	-
TRH >C16-C34 (F3)	µg/L	500	-	-	-	-
TRH >C34-C40 (F4)	µg/L	500	-	-	-	-
Trace Metals (Dissolved) in Water by ICPMS Method: AN318						
Arsenic, As	µg/L	1	-	-	-	-
Cadmium, Cd	µg/L	0.1	-	-	-	-
Chromium, Cr	µg/L	1	-	-	-	-
Copper, Cu	µg/L	1	-	-	-	-
Lead, Pb	µg/L	1	-	-	-	-
Nickel, Ni	µg/L	1	-	-	-	-
Zinc, Zn	µg/L	5	-	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE129159.001 Soil 24 Jun 2014 BH1-1	SE129159.002 Soil 24 Jun 2014 BH2-1	SE129159.003 Soil 24 Jun 2014 BH3-1	SE129159.004 Soil 24 Jun 2014 BH3-2
Mercury (dissolved) in Water Method: AN311/AN312							
Mercury	mg/L	0.0001		-	-	-	-

Parameter	Units	LOR	Sample Number: SE129159.005 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH6-1	SE129159.006 Soil 24 Jun 2014 BH7-1	SE129159.007 Soil 24 Jun 2014 BH8-1	SE129159.008 Soil 24 Jun 2014 BH8-2
VOC's in Soil Method: AN433/AN434						
Monocyclic Aromatic Hydrocarbons						
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Polycyclic VOCs						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Surrogates						
Dibromofluoromethane (Surrogate)	%	-	**83**	**85**	**74**	**71**
d4-1,2-dichloroethane (Surrogate)	%	-	**113**	**110**	**75**	**77**
d8-toluene (Surrogate)	%	-	**118**	**84**	**107**	**115**
Bromofluorobenzene (Surrogate)	%	-	**79**	**77**	**71**	**91**
Totals						
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410						
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Surrogates						
Dibromofluoromethane (Surrogate)	%	-	**83**	**85**	**74**	**71**
d4-1,2-dichloroethane (Surrogate)	%	-	**113**	**110**	**75**	**77**
d8-toluene (Surrogate)	%	-	**118**	**84**	**107**	**115**
Bromofluorobenzene (Surrogate)	%	-	**79**	**77**	**71**	**91**

Parameter	Units	LOR	Sample Number: SE129159.005 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH6-1	SE129159.006 Soil 24 Jun 2014 BH7-1	SE129159.007 Soil 24 Jun 2014 BH8-1	SE129159.008 Soil 24 Jun 2014 BH8-2
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410 (continued)						
VPH F Bands						
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	<25
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403						
TRH C10-C14	mg/kg	20	<20	<20	<20	<20
TRH C15-C28	mg/kg	45	<45	<45	**67**	<45
TRH C29-C36	mg/kg	45	<45	<45	**81**	<45
TRH C37-C40	mg/kg	100	<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110	<110	<110	**150**	<110
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	<210
TRH F Bands						
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	**130**	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	<120
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	<0.1	**0.2**	**0.2**	<0.1
Anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	<0.1	**0.4**	**0.3**	**0.1**
Pyrene	mg/kg	0.1	<0.1	**0.3**	**0.2**	<0.1
Benzo(a)anthracene	mg/kg	0.1	<0.1	**0.2**	**0.2**	<0.1
Chrysene	mg/kg	0.1	<0.1	**0.2**	**0.1**	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	**0.3**	**0.2**	**0.1**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	**0.1**	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	**0.2**	**0.1**	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	**0.2**	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	**0.2**	<0.1	<0.1
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2	<0.2	**0.3**	<0.2	<0.2
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	**0.4**	<0.3	<0.3
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	**0.3**	**0.2**	<0.2
Total PAH	mg/kg	0.8	<0.8	**2.1**	**1.5**	<0.8

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE129159.005 Soil 24 Jun 2014 BH6-1	SE129159.006 Soil 24 Jun 2014 BH7-1	SE129159.007 Soil 24 Jun 2014 BH8-1	SE129159.008 Soil 24 Jun 2014 BH8-2
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 (continued)							
Surrogates							
d5-nitrobenzene (Surrogate)	%	-		**98**	**96**	**94**	**100**
2-fluorobiphenyl (Surrogate)	%	-		**90**	**96**	**92**	**94**
d14-p-terphenyl (Surrogate)	%	-		**106**	**114**	**112**	**108**
OC Pesticides in Soil Method: AN400/AN420							
Hexachlorobenzene (HCB)	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Surrogates							
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-		**114**	**119**	**129**	**125**
OP Pesticides in Soil Method: AN400/AN420							
Dichlorvos	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5		<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2		<0.2	<0.2	<0.2	<0.2

Parameter	Units	LOR	Sample Number: SE129159.005 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH6-1	SE129159.006 Soil 24 Jun 2014 BH7-1	SE129159.007 Soil 24 Jun 2014 BH8-1	SE129159.008 Soil 24 Jun 2014 BH8-2
OP Pesticides in Soil Method: AN400/AN420 (continued)						
Surrogates						
2-fluorobiphenyl (Surrogate)	%	-	**90**	**96**	**92**	**94**
d14-p-terphenyl (Surrogate)	%	-	**106**	**114**	**112**	**108**
PCBs in Soil Method: AN400/AN420						
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**114**	**119**	**129**	**125**
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320						
Arsenic, As	mg/kg	3	**4**	**7**	**11**	**13**
Cadmium, Cd	mg/kg	0.3	<0.3	**0.4**	**0.4**	**0.5**
Chromium, Cr	mg/kg	0.3	**4.6**	**24**	**17**	**17**
Copper, Cu	mg/kg	0.5	**5.1**	**27**	**21**	**24**
Lead, Pb	mg/kg	1	**8**	**140**	**50**	**36**
Nickel, Ni	mg/kg	0.5	**3.0**	**18**	**8.9**	**10**
Zinc, Zn	mg/kg	0.5	**20**	**160**	**130**	**140**
Mercury in Soil Method: AN312						
Mercury	mg/kg	0.01	**0.03**	**0.07**	**0.02**	**0.02**
Fibre Identification in soil Method: AN602						
FibreID						
Asbestos Detected	No unit	-	No	No	No	No

Parameter	Units	LOR	Sample Number: SE129159.005 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH6-1	SE129159.006 Soil 24 Jun 2014 BH7-1	SE129159.007 Soil 24 Jun 2014 BH8-1	SE129159.008 Soil 24 Jun 2014 BH8-2
Fibre Identification in soil Method: AN602 (continued)						
SemiQuant						
Estimated Fibres	%w/w	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Moisture Content Method: AN002						
% Moisture	%	0.5	**5.9**	**13**	**18**	**15**
VOCs in Water Method: AN433/AN434						
Monocyclic Aromatic Hydrocarbons						
Benzene	µg/L	0.5	-	-	-	-
Toluene	µg/L	0.5	-	-	-	-
Ethylbenzene	µg/L	0.5	-	-	-	-
m/p-xylene	µg/L	1	-	-	-	-
o-xylene	µg/L	0.5	-	-	-	-
Polycyclic VOCs						
Naphthalene	µg/L	0.5	-	-	-	-
Surrogates						
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-
Totals						
Total Xylenes	µg/L	1.5	-	-	-	-
Total BTEX	µg/L	3	-	-	-	-
Volatile Petroleum Hydrocarbons in Water Method: AN433/AN434/AN410						
TRH C6-C10	µg/L	50	-	-	-	-
TRH C6-C9	µg/L	40	-	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name SE129159.005 Soil 24 Jun 2014 BH6-1	SE129159.006 Soil 24 Jun 2014 BH7-1	SE129159.007 Soil 24 Jun 2014 BH8-1	SE129159.008 Soil 24 Jun 2014 BH8-2
Volatile Petroleum Hydrocarbons in Water Method: AN433/AN434/AN410 (continued)						
Surrogates						
Dibromofluoromethane (Surrogate)	%	-	-	-	-	-
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	-	-
d8-toluene (Surrogate)	%	-	-	-	-	-
Bromofluorobenzene (Surrogate)	%	-	-	-	-	-
VPH F Bands						
Benzene (F0)	µg/L	0.5	-	-	-	-
TRH C6-C10 minus BTEX (F1)	µg/L	50	-	-	-	-
TRH (Total Recoverable Hydrocarbons) in Water Method: AN403						
TRH C10-C14	µg/L	50	-	-	-	-
TRH C15-C28	µg/L	200	-	-	-	-
TRH C29-C36	µg/L	200	-	-	-	-
TRH C37-C40	µg/L	200	-	-	-	-
TRH C10-C36	µg/L	450	-	-	-	-
TRH C10-C40	µg/L	650	-	-	-	-
TRH F Bands						
TRH >C10-C16 (F2)	µg/L	60	-	-	-	-
TRH >C16-C34 (F3)	µg/L	500	-	-	-	-
TRH >C34-C40 (F4)	µg/L	500	-	-	-	-
Trace Metals (Dissolved) in Water by ICPMS Method: AN318						
Arsenic, As	µg/L	1	-	-	-	-
Cadmium, Cd	µg/L	0.1	-	-	-	-
Chromium, Cr	µg/L	1	-	-	-	-
Copper, Cu	µg/L	1	-	-	-	-
Lead, Pb	µg/L	1	-	-	-	-
Nickel, Ni	µg/L	1	-	-	-	-
Zinc, Zn	µg/L	5	-	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE129159.005 Soil 24 Jun 2014 BH6-1	SE129159.006 Soil 24 Jun 2014 BH7-1	SE129159.007 Soil 24 Jun 2014 BH8-1	SE129159.008 Soil 24 Jun 2014 BH8-2
Mercury (dissolved) in Water Method: AN311/AN312							
Mercury	mg/L	0.0001		-	-	-	-

Parameter	Units	LOR	Sample Number: SE129159.009 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH9-1	SE129159.010 Soil 24 Jun 2014 B1	SE129159.011 Water 24 Jun 2014 RB
VOC's in Soil Method: AN433/AN434					
Monocyclic Aromatic Hydrocarbons					
Benzene	mg/kg	0.1	<0.1	<0.1	-
Toluene	mg/kg	0.1	<0.1	<0.1	-
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	-
m/p-xylene	mg/kg	0.2	<0.2	<0.2	-
o-xylene	mg/kg	0.1	<0.1	<0.1	-
Polycyclic VOCs					
Naphthalene	mg/kg	0.1	<0.1	<0.1	-
Surrogates					
Dibromofluoromethane (Surrogate)	%	-	**72**	**72**	-
d4-1,2-dichloroethane (Surrogate)	%	-	**90**	**90**	-
d8-toluene (Surrogate)	%	-	**93**	**108**	-
Bromofluorobenzene (Surrogate)	%	-	**79**	**84**	-
Totals					
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	-
Total BTEX*	mg/kg	0.6	<0.6	<0.6	-
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410					
TRH C6-C10	mg/kg	25	<25	<25	-
TRH C6-C9	mg/kg	20	<20	<20	-
Surrogates					
Dibromofluoromethane (Surrogate)	%	-	**72**	**72**	-
d4-1,2-dichloroethane (Surrogate)	%	-	**90**	**90**	-
d8-toluene (Surrogate)	%	-	**93**	**108**	-
Bromofluorobenzene (Surrogate)	%	-	**79**	**84**	-

Parameter	Units	LOR	Sample Number: SE129159.009 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH9-1	SE129159.010 Soil 24 Jun 2014 B1	SE129159.011 Water 24 Jun 2014 RB
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410 (continued)					
VPH F Bands					
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	-
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403					
TRH C10-C14	mg/kg	20	<20	<20	-
TRH C15-C28	mg/kg	45	<45	<45	-
TRH C29-C36	mg/kg	45	<45	<45	-
TRH C37-C40	mg/kg	100	<100	<100	-
TRH C10-C36 Total	mg/kg	110	<110	<110	-
TRH C10-C40 Total	mg/kg	210	<210	<210	-
TRH F Bands					
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	-
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	-
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420					
Naphthalene	mg/kg	0.1	<0.1	-	-
2-methylnaphthalene	mg/kg	0.1	<0.1	-	-
1-methylnaphthalene	mg/kg	0.1	<0.1	-	-
Acenaphthylene	mg/kg	0.1	<0.1	-	-
Acenaphthene	mg/kg	0.1	<0.1	-	-
Fluorene	mg/kg	0.1	<0.1	-	-
Phenanthrene	mg/kg	0.1	**0.2**	-	-
Anthracene	mg/kg	0.1	<0.1	-	-
Fluoranthene	mg/kg	0.1	**0.4**	-	-
Pyrene	mg/kg	0.1	**0.3**	-	-
Benzo(a)anthracene	mg/kg	0.1	**0.2**	-	-
Chrysene	mg/kg	0.1	**0.1**	-	-
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.3**	-	-
Benzo(k)fluoranthene	mg/kg	0.1	**0.1**	-	-
Benzo(a)pyrene	mg/kg	0.1	**0.2**	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	**0.2**	-	-
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	-	-
Benzo(ghi)perylene	mg/kg	0.1	**0.2**	-	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2	**0.3**	-	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3	**0.4**	-	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2	**0.4**	-	-
Total PAH	mg/kg	0.8	**2.3**	-	-

Parameter	Units	LOR	Sample Number: SE129159.009 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH9-1	SE129159.010 Soil 24 Jun 2014 B1	SE129159.011 Water 24 Jun 2014 RB
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 (continued)					
Surrogates					
d5-nitrobenzene (Surrogate)	%	-	**102**	-	-
2-fluorobiphenyl (Surrogate)	%	-	**90**	-	-
d14-p-terphenyl (Surrogate)	%	-	**110**	-	-
OC Pesticides in Soil Method: AN400/AN420					
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-	-
Alpha BHC	mg/kg	0.1	<0.1	-	-
Lindane	mg/kg	0.1	<0.1	-	-
Heptachlor	mg/kg	0.1	<0.1	-	-
Aldrin	mg/kg	0.1	<0.1	-	-
Beta BHC	mg/kg	0.1	<0.1	-	-
Delta BHC	mg/kg	0.1	<0.1	-	-
Heptachlor epoxide	mg/kg	0.1	<0.1	-	-
o,p'-DDE	mg/kg	0.1	<0.1	-	-
Alpha Endosulfan	mg/kg	0.2	<0.2	-	-
Gamma Chlordane	mg/kg	0.1	<0.1	-	-
Alpha Chlordane	mg/kg	0.1	<0.1	-	-
trans-Nonachlor	mg/kg	0.1	<0.1	-	-
p,p'-DDE	mg/kg	0.1	<0.1	-	-
Dieldrin	mg/kg	0.2	<0.2	-	-
Endrin	mg/kg	0.2	<0.2	-	-
o,p'-DDD	mg/kg	0.1	<0.1	-	-
o,p'-DDT	mg/kg	0.1	<0.1	-	-
Beta Endosulfan	mg/kg	0.2	<0.2	-	-
p,p'-DDD	mg/kg	0.1	<0.1	-	-
p,p'-DDT	mg/kg	0.1	<0.1	-	-
Endosulfan sulphate	mg/kg	0.1	<0.1	-	-
Endrin Aldehyde	mg/kg	0.1	<0.1	-	-
Methoxychlor	mg/kg	0.1	<0.1	-	-
Endrin Ketone	mg/kg	0.1	<0.1	-	-
Isodrin	mg/kg	0.1	<0.1	-	-
Mirex	mg/kg	0.1	<0.1	-	-
Surrogates					
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**123**	-	-
OP Pesticides in Soil Method: AN400/AN420					
Dichlorvos	mg/kg	0.5	<0.5	-	-
Dimethoate	mg/kg	0.5	<0.5	-	-
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	-	-
Fenitrothion	mg/kg	0.2	<0.2	-	-
Malathion	mg/kg	0.2	<0.2	-	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	-	-
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-	-
Bromophos Ethyl	mg/kg	0.2	<0.2	-	-
Methidathion	mg/kg	0.5	<0.5	-	-
Ethion	mg/kg	0.2	<0.2	-	-
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-	-

Parameter	Units	LOR	Sample Number: SE129159.009 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH9-1	SE129159.010 Soil 24 Jun 2014 B1	SE129159.011 Water 24 Jun 2014 RB
OP Pesticides in Soil Method: AN400/AN420 (continued)					
Surrogates					
2-fluorobiphenyl (Surrogate)	%	-	**90**	-	-
d14-p-terphenyl (Surrogate)	%	-	**110**	-	-
PCBs in Soil Method: AN400/AN420					
Arochlor 1016	mg/kg	0.2	<0.2	-	-
Arochlor 1221	mg/kg	0.2	<0.2	-	-
Arochlor 1232	mg/kg	0.2	<0.2	-	-
Arochlor 1242	mg/kg	0.2	<0.2	-	-
Arochlor 1248	mg/kg	0.2	<0.2	-	-
Arochlor 1254	mg/kg	0.2	<0.2	-	-
Arochlor 1260	mg/kg	0.2	<0.2	-	-
Arochlor 1262	mg/kg	0.2	<0.2	-	-
Arochlor 1268	mg/kg	0.2	<0.2	-	-
Total PCBs (Arochlors)	mg/kg	1	<1	-	-
Surrogates					
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**123**	-	-
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320					
Arsenic, As	mg/kg	3	**4**	**3**	-
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	-
Chromium, Cr	mg/kg	0.3	**36**	**2.2**	-
Copper, Cu	mg/kg	0.5	**8.5**	**1.1**	-
Lead, Pb	mg/kg	1	**22**	**1**	-
Nickel, Ni	mg/kg	0.5	**27**	**12**	-
Zinc, Zn	mg/kg	0.5	**27**	**6.1**	-
Mercury in Soil Method: AN312					
Mercury	mg/kg	0.01	**0.02**	<0.01	-

Parameter	Units	LOR	Sample Number: SE129159.009 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH9-1	SE129159.010 Soil 24 Jun 2014 B1	SE129159.011 Water 24 Jun 2014 RB
Fibre Identification in soil Method: AN602					
FibreID					
Asbestos Detected	No unit	-	No	-	-
SemiQuant					
Estimated Fibres	%w/w	0.01	< 0.01	-	-
Moisture Content Method: AN002					
% Moisture	%	0.5	**16**	**7.1**	-
VOCs in Water Method: AN433/AN434					
Monocyclic Aromatic Hydrocarbons					
Benzene	µg/L	0.5	-	-	<0.5
Toluene	µg/L	0.5	-	-	<0.5
Ethylbenzene	µg/L	0.5	-	-	<0.5
m/p-xylene	µg/L	1	-	-	<1
o-xylene	µg/L	0.5	-	-	<0.5
Polycyclic VOCs					
Naphthalene	µg/L	0.5	-	-	<0.5
Surrogates					
Dibromofluoromethane (Surrogate)	%	-	-	-	**120**
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	**100**
d8-toluene (Surrogate)	%	-	-	-	**95**
Bromofluorobenzene (Surrogate)	%	-	-	-	**95**
Totals					
Total Xylenes	µg/L	1.5	-	-	<1.5
Total BTEX	µg/L	3	-	-	<3

Parameter	Units	LOR	Sample Number: SE129159.009 Sample Matrix: Soil Sample Date: 24 Jun 2014 Sample Name: BH9-1	SE129159.010 Soil 24 Jun 2014 B1	SE129159.011 Water 24 Jun 2014 RB
Volatile Petroleum Hydrocarbons in Water Method: AN433/AN434/AN410					
TRH C6-C10	µg/L	50	-	-	<50
TRH C6-C9	µg/L	40	-	-	<40
Surrogates					
Dibromofluoromethane (Surrogate)	%	-	-	-	**120**
d4-1,2-dichloroethane (Surrogate)	%	-	-	-	**100**
d8-toluene (Surrogate)	%	-	-	-	**95**
Bromofluorobenzene (Surrogate)	%	-	-	-	**95**
VPH F Bands					
Benzene (F0)	µg/L	0.5	-	-	<0.5
TRH C6-C10 minus BTEX (F1)	µg/L	50	-	-	<50
TRH (Total Recoverable Hydrocarbons) in Water Method: AN403					
TRH C10-C14	µg/L	50	-	-	<50
TRH C15-C28	µg/L	200	-	-	<200
TRH C29-C36	µg/L	200	-	-	<200
TRH C37-C40	µg/L	200	-	-	<200
TRH C10-C36	µg/L	450	-	-	<450
TRH C10-C40	µg/L	650	-	-	<650
TRH F Bands					
TRH >C10-C16 (F2)	µg/L	60	-	-	<60
TRH >C16-C34 (F3)	µg/L	500	-	-	<500
TRH >C34-C40 (F4)	µg/L	500	-	-	<500

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name SE129159.009 Soil 24 Jun 2014 BH9-1	SE129159.010 Soil 24 Jun 2014 B1	SE129159.011 Water 24 Jun 2014 RB
Trace Metals (Dissolved) in Water by ICPMS Method: AN318					
Arsenic, As	µg/L	1	-	-	<1
Cadmium, Cd	µg/L	0.1	-	-	<0.1
Chromium, Cr	µg/L	1	-	-	<1
Copper, Cu	µg/L	1	-	-	<1
Lead, Pb	µg/L	1	-	-	<1
Nickel, Ni	µg/L	1	-	-	<1
Zinc, Zn	µg/L	5	-	-	<5
Mercury (dissolved) in Water Method: AN311/AN312					
Mercury	mg/L	0.0001	-	-	<0.0001

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Mercury (dissolved) in Water **Method: ME-(AU)-[ENV]AN311/AN312**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB060229	mg/L	0.0001	<0.0001	0%	102%	103%

Mercury in Soil **Method: ME-(AU)-[ENV]AN312**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB060214	mg/kg	0.01	<0.01	0%	103%	100%

Moisture Content **Method: ME-(AU)-[ENV]AN002**

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB060219	%	0.5	1 - 5%

OC Pesticides in Soil **Method: ME-(AU)-[ENV]AN400/AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Hexachlorobenzene (HCB)	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Alpha BHC	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Lindane	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Heptachlor	LB059990	mg/kg	0.1	<0.1	0%	75%	120%	8%
Aldrin	LB059990	mg/kg	0.1	<0.1	0%	75%	125%	4%
Beta BHC	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Delta BHC	LB059990	mg/kg	0.1	<0.1	0%	75%	115%	8%
Heptachlor epoxide	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
o,p'-DDE	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Alpha Endosulfan	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Gamma Chlordane	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Alpha Chlordane	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
trans-Nonachlor	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
p,p'-DDE	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Dieldrin	LB059990	mg/kg	0.2	<0.2	0%	70%	115%	8%
Endrin	LB059990	mg/kg	0.2	<0.2	0%	75%	120%	8%
o,p'-DDD	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
o,p'-DDT	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Beta Endosulfan	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
p,p'-DDD	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
p,p'-DDT	LB059990	mg/kg	0.1	<0.1	0%	65%	110%	9%
Endosulfan sulphate	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Endrin Aldehyde	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Methoxychlor	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Endrin Ketone	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Isodrin	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Mirex	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB059990	%	-	101%	2%	113%	90%	2%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

OP Pesticides in Soil Method: ME-(AU)-[ENV]AN400/AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Dichlorvos	LB059990	mg/kg	0.5	<0.5	0%	92%	87%	4%
Dimethoate	LB059990	mg/kg	0.5	<0.5	0%	NA	NA	NA
Diazinon (Dimpylate)	LB059990	mg/kg	0.5	<0.5	0%	87%	79%	10%
Fenitrothion	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Malathion	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Chlorpyrifos (Chlorpyrifos Ethyl)	LB059990	mg/kg	0.2	<0.2	0%	82%	71%	3%
Parathion-ethyl (Parathion)	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Bromophos Ethyl	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Methidathion	LB059990	mg/kg	0.5	<0.5	0%	NA	NA	NA
Ethion	LB059990	mg/kg	0.2	<0.2	0%	70%	72%	1%
Azinphos-methyl (Guthion)	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
2-fluorobiphenyl (Surrogate)	LB059990	%	-	94%	2%	92%	92%	4%
d14-p-terphenyl (Surrogate)	LB059990	%	-	100%	0%	102%	98%	6%

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Naphthalene	LB059990	mg/kg	0.1	<0.1	0 - 21%	105%	104%	6%
2-methylnaphthalene	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
1-methylnaphthalene	LB059990	mg/kg	0.1	<0.1	0 - 26%	NA	NA	NA
Acenaphthylene	LB059990	mg/kg	0.1	<0.1	0 - 96%	106%	106%	9%
Acenaphthene	LB059990	mg/kg	0.1	<0.1	0 - 10%	123%	114%	10%
Fluorene	LB059990	mg/kg	0.1	<0.1	0 - 101%	NA	NA	NA
Phenanthrene	LB059990	mg/kg	0.1	<0.1	0 - 72%	103%	103%	2%
Anthracene	LB059990	mg/kg	0.1	<0.1	0 - 77%	98%	95%	5%
Fluoranthene	LB059990	mg/kg	0.1	<0.1	0 - 59%	100%	104%	1%
Pyrene	LB059990	mg/kg	0.1	<0.1	0 - 55%	85%	81%	17%
Benzo(a)anthracene	LB059990	mg/kg	0.1	<0.1	0 - 43%	NA	NA	NA
Chrysene	LB059990	mg/kg	0.1	<0.1	0 - 22%	NA	NA	NA
Benzo(b&j)fluoranthene	LB059990	mg/kg	0.1	<0.1	0 - 22%	NA	NA	NA
Benzo(k)fluoranthene	LB059990	mg/kg	0.1	<0.1	0 - 18%	NA	NA	NA
Benzo(a)pyrene	LB059990	mg/kg	0.1	<0.1	0 - 12%	109%	113%	1%
Indeno(1,2,3-cd)pyrene	LB059990	mg/kg	0.1	<0.1	0 - 15%	NA	NA	NA
Dibenzo(a&h)anthracene	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Benzo(ghi)perylene	LB059990	mg/kg	0.1	<0.1	0 - 15%	NA	NA	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	LB059990	TEQ	0.2	<0.2	0 - 14%	NA	NA	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	LB059990	TEQ (mg/kg)	0.3	<0.3	0 - 14%	NA	NA	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	LB059990	TEQ (mg/kg)	0.2	<0.2	0 - 14%	NA	NA	NA
Total PAH	LB059990	mg/kg	0.8	<0.8	0 - 41%	NA	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
d5-nitrobenzene (Surrogate)	LB059990	%	-	102%	2 - 17%	94%	90%	2%
2-fluorobiphenyl (Surrogate)	LB059990	%	-	94%	2 - 6%	92%	92%	4%
d14-p-terphenyl (Surrogate)	LB059990	%	-	100%	0 - 2%	102%	98%	6%

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

PCBs in Soil Method: ME-(AU)-[ENV]AN400/AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Arochlor 1016	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Arochlor 1221	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Arochlor 1232	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Arochlor 1242	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Arochlor 1248	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Arochlor 1254	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Arochlor 1260	LB059990	mg/kg	0.2	<0.2	0%	124%	97%	4%
Arochlor 1262	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Arochlor 1268	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Total PCBs (Arochlors)	LB059990	mg/kg	1	<1	0%	NA	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB059990	%	-	101%	2%	113%	97%	1%

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: ME-(AU)-[ENV]AN040/AN320

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB060211	mg/kg	3	<3	15 - 18%	104%	107%
Cadmium, Cd	LB060211	mg/kg	0.3	<0.3	0 - 16%	103%	106%
Chromium, Cr	LB060211	mg/kg	0.3	<0.3	5 - 6%	103%	106%
Copper, Cu	LB060211	mg/kg	0.5	<0.5	7 - 11%	103%	107%
Lead, Pb	LB060211	mg/kg	1	<1	6 - 7%	102%	106%
Nickel, Ni	LB060211	mg/kg	0.5	<0.5	1 - 6%	105%	109%
Zinc, Zn	LB060211	mg/kg	0.5	<0.5	4 - 13%	104%	107%

Trace Metals (Dissolved) in Water by ICPMS Method: ME-(AU)-[ENV]AN318

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB059997	µg/L	1	<1	0%	97%	95%
Cadmium, Cd	LB059997	µg/L	0.1	<0.1	0%	100%	100%
Chromium, Cr	LB059997	µg/L	1	<1	0%	101%	98%
Copper, Cu	LB059997	µg/L	1	<1	0%	98%	95%
Lead, Pb	LB059997	µg/L	1	<1	0%	99%	96%
Nickel, Ni	LB059997	µg/L	1	<1	0%	100%	98%
Zinc, Zn	LB059997	µg/L	5	<5	0 - 2%	107%	103%

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

TRH (Total Recoverable Hydrocarbons) in Soil **Method: ME-(AU)-[ENV]AN403**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MSD %RPD
TRH C10-C14	LB059990	mg/kg	20	<20	0%	90%	NA
TRH C15-C28	LB059990	mg/kg	45	<45	0%	88%	NA
TRH C29-C36	LB059990	mg/kg	45	<45	0%	88%	NA
TRH C37-C40	LB059990	mg/kg	100	<100	0%	NA	NA
TRH C10-C36 Total	LB059990	mg/kg	110	<110	0%	NA	NA
TRH C10-C40 Total	LB059990	mg/kg	210	<210	0%	NA	NA

TRH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MSD %RPD
TRH >C10-C16 (F2)	LB059990	mg/kg	25	<25	0%	90%	NA
TRH >C16-C34 (F3)	LB059990	mg/kg	90	<90	0%	83%	NA
TRH >C34-C40 (F4)	LB059990	mg/kg	120	<120	0%	95%	NA

TRH (Total Recoverable Hydrocarbons) in Water **Method: ME-(AU)-[ENV]AN403**

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
TRH C10-C14	LB060002	µg/L	50	<50	89%
TRH C15-C28	LB060002	µg/L	200	<200	96%
TRH C29-C36	LB060002	µg/L	200	<200	93%
TRH C37-C40	LB060002	µg/L	200	<200	NA
TRH C10-C36	LB060002	µg/L	450	<450	NA
TRH C10-C40	LB060002	µg/L	650	<650	NA

TRH F Bands

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
TRH >C10-C16 (F2)	LB060002	µg/L	60	<60	90%
TRH >C16-C34 (F3)	LB060002	µg/L	500	<500	97%
TRH >C34-C40 (F4)	LB060002	µg/L	500	<500	104%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

VOC's in Soil Method: ME-(AU)-[ENV]AN433/AN434

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene	LB059953	mg/kg	0.1	<0.1	0%	107%	73%
Toluene	LB059953	mg/kg	0.1	<0.1	0%	135%	94%
Ethylbenzene	LB059953	mg/kg	0.1	<0.1	0%	118%	97%
m/p-xylene	LB059953	mg/kg	0.2	<0.2	0%	89%	94%
o-xylene	LB059953	mg/kg	0.1	<0.1	0%	119%	86%

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB059953	mg/kg	0.1	<0.1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dibromofluoromethane (Surrogate)	LB059953	%	-	80%	0 - 7%	77%	83%
d4-1,2-dichloroethane (Surrogate)	LB059953	%	-	107%	25 - 33%	79%	89%
d8-toluene (Surrogate)	LB059953	%	-	116%	6%	111%	95%
Bromofluorobenzene (Surrogate)	LB059953	%	-	78%	0 - 9%	71%	110%

Totals

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Xylenes*	LB059953	mg/kg	0.3	<0.3	0%	NA	NA
Total BTEX*	LB059953	mg/kg	0.6	<0.6	0%	NA	NA

VOCs in Water Method: ME-(AU)-[ENV]AN433/AN434

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Benzene	LB060059	µg/L	0.5	<0.5	112%
Toluene	LB060059	µg/L	0.5	<0.5	113%
Ethylbenzene	LB060059	µg/L	0.5	<0.5	113%
m/p-xylene	LB060059	µg/L	1	<1	112%
o-xylene	LB060059	µg/L	0.5	<0.5	113%

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Naphthalene	LB060059	µg/L	0.5	<0.5	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Dibromofluoromethane (Surrogate)	LB060059	%	-	107%	97%
d4-1,2-dichloroethane (Surrogate)	LB060059	%	-	101%	98%
d8-toluene (Surrogate)	LB060059	%	-	98%	100%
Bromofluorobenzene (Surrogate)	LB060059	%	-	86%	101%

Totals

Parameter	QC Reference	Units	LOR	MB
Total Xylenes	LB060059	µg/L	1.5	<1.5
Total BTEX	LB060059	µg/L	3	<3

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Volatile Petroleum Hydrocarbons in Soil **Method: ME-(AU)-[ENV]AN433/AN434/AN410**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C6-C10	LB059953	mg/kg	25	<25	0%	113%	102%
TRH C6-C9	LB059953	mg/kg	20	<20	0%	104%	97%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dibromofluoromethane (Surrogate)	LB059953	%	-	80%	0 - 7%	77%	83%
d4-1,2-dichloroethane (Surrogate)	LB059953	%	-	107%	25 - 33%	79%	89%
d8-toluene (Surrogate)	LB059953	%	-	116%	6%	111%	95%
Bromofluorobenzene (Surrogate)	LB059953	%	-	78%	0 - 9%	71%	110%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene (F0)	LB059953	mg/kg	0.1	<0.1	0%	NA	NA
TRH C6-C10 minus BTEX (F1)	LB059953	mg/kg	25	<25	0%	121%	133%

Volatile Petroleum Hydrocarbons in Water **Method: ME-(AU)-[ENV]AN433/AN434/AN410**

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
TRH C6-C10	LB060059	µg/L	50	<50	107%
TRH C6-C9	LB060059	µg/L	40	<40	101%

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Dibromofluoromethane (Surrogate)	LB060059	%	-	107%	97%
d4-1,2-dichloroethane (Surrogate)	LB060059	%	-	101%	98%
d8-toluene (Surrogate)	LB060059	%	-	98%	100%
Bromofluorobenzene (Surrogate)	LB060059	%	-	86%	101%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Benzene (F0)	LB060059	µg/L	0.5	<0.5	NA
TRH C6-C10 minus BTEX (F1)	LB060059	µg/L	50	<50	110%

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analsysis by ASS or ICP as per USEPA Method 200.8.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN083	Separatory funnels are used for aqueous samples and extracted by transferring an appropriate volume (mass) of liquid into a separatory funnel and adding 3 serial aliquots of dichloromethane. Samples receive a single extraction at pH 7 to recover base / neutral analytes and two extractions at pH < 2 to recover acidic analytes. QC samples are prepared by spiking organic free water with target analytes and extracting as per samples.
AN088	Orbital rolling for Organic pollutants are extracted from soil/sediment by transferring an appropriate mass of sample to a clear soil jar and extracting with 1:1 Dichloromethane/Acetone. Orbital Rolling method is intended for the extraction of semi-volatile organic compounds from soil/sediment samples, and is based somewhat on USEPA method 3570 (Micro Organic extraction and sample preparation). Method 3700.
AN311/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is not corrected for Naphthalene.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN433/AN434/AN410	VOCs and C6-C9/C6-C10 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	This analysis is not covered by the scope of accreditation.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
^	Performed by outside laboratory.	NVL	Not Validated

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here:
http://www.sgs.com.au.pv.sgsv3/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx . The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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STATEMENT OF QA/QC PERFORMANCE

SE129159 R0

CLIENT DETAILS

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Order Number	**E22232**
Samples	11

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SGS Reference	SE129159 R0
Report Number	0000086489
Date Reported	07 Jul 2014

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS Environmental Services' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Extraction Date	VOCs in Water	1 item
	Volatile Petroleum Hydrocarbons in Water	1 item
Duplicate	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	8 items
	Volatile Petroleum Hydrocarbons in Soil	1 item

SAMPLE SUMMARY

Sample counts by matrix	10 Soils & 1 Water	Type of documentation received	COC
Date documentation received	30/6/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3.7°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE129159 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-1	SE129159.001	LB060258	24 Jun 2014	25 Jun 2014	24 Jun 2015	04 Jul 2014	24 Jun 2015	07 Jul 2014
BH2-1	SE129159.002	LB060258	24 Jun 2014	25 Jun 2014	24 Jun 2015	04 Jul 2014	24 Jun 2015	07 Jul 2014
BH3-1	SE129159.003	LB060258	24 Jun 2014	25 Jun 2014	24 Jun 2015	04 Jul 2014	24 Jun 2015	07 Jul 2014
BH3-2	SE129159.004	LB060258	24 Jun 2014	25 Jun 2014	24 Jun 2015	04 Jul 2014	24 Jun 2015	07 Jul 2014
BH6-1	SE129159.005	LB060258	24 Jun 2014	25 Jun 2014	24 Jun 2015	04 Jul 2014	24 Jun 2015	07 Jul 2014
BH7-1	SE129159.006	LB060258	24 Jun 2014	25 Jun 2014	24 Jun 2015	04 Jul 2014	24 Jun 2015	07 Jul 2014
BH8-1	SE129159.007	LB060258	24 Jun 2014	25 Jun 2014	24 Jun 2015	04 Jul 2014	24 Jun 2015	07 Jul 2014
BH8-2	SE129159.008	LB060258	24 Jun 2014	25 Jun 2014	24 Jun 2015	04 Jul 2014	24 Jun 2015	07 Jul 2014
BH9-1	SE129159.009	LB060258	24 Jun 2014	25 Jun 2014	24 Jun 2015	04 Jul 2014	24 Jun 2015	07 Jul 2014

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB	SE129159.011	LB060229	24 Jun 2014	25 Jun 2014	22 Jul 2014	04 Jul 2014	22 Jul 2014	07 Jul 2014

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-1	SE129159.001	LB060214	24 Jun 2014	25 Jun 2014	22 Jul 2014	04 Jul 2014	22 Jul 2014	07 Jul 2014
BH2-1	SE129159.002	LB060214	24 Jun 2014	25 Jun 2014	22 Jul 2014	04 Jul 2014	22 Jul 2014	07 Jul 2014
BH3-1	SE129159.003	LB060214	24 Jun 2014	25 Jun 2014	22 Jul 2014	04 Jul 2014	22 Jul 2014	07 Jul 2014
BH3-2	SE129159.004	LB060214	24 Jun 2014	25 Jun 2014	22 Jul 2014	04 Jul 2014	22 Jul 2014	07 Jul 2014
BH6-1	SE129159.005	LB060214	24 Jun 2014	25 Jun 2014	22 Jul 2014	04 Jul 2014	22 Jul 2014	07 Jul 2014
BH7-1	SE129159.006	LB060214	24 Jun 2014	25 Jun 2014	22 Jul 2014	04 Jul 2014	22 Jul 2014	07 Jul 2014
BH8-1	SE129159.007	LB060214	24 Jun 2014	25 Jun 2014	22 Jul 2014	04 Jul 2014	22 Jul 2014	07 Jul 2014
BH8-2	SE129159.008	LB060214	24 Jun 2014	25 Jun 2014	22 Jul 2014	04 Jul 2014	22 Jul 2014	07 Jul 2014
BH9-1	SE129159.009	LB060214	24 Jun 2014	25 Jun 2014	22 Jul 2014	04 Jul 2014	22 Jul 2014	07 Jul 2014
B1	SE129159.010	LB060214	24 Jun 2014	25 Jun 2014	22 Jul 2014	04 Jul 2014	22 Jul 2014	07 Jul 2014

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-1	SE129159.001	LB060219	24 Jun 2014	25 Jun 2014	08 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH2-1	SE129159.002	LB060219	24 Jun 2014	25 Jun 2014	08 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH3-1	SE129159.003	LB060219	24 Jun 2014	25 Jun 2014	08 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH3-2	SE129159.004	LB060219	24 Jun 2014	25 Jun 2014	08 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH6-1	SE129159.005	LB060219	24 Jun 2014	25 Jun 2014	08 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH7-1	SE129159.006	LB060219	24 Jun 2014	25 Jun 2014	08 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH8-1	SE129159.007	LB060219	24 Jun 2014	25 Jun 2014	08 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH8-2	SE129159.008	LB060219	24 Jun 2014	25 Jun 2014	08 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH9-1	SE129159.009	LB060219	24 Jun 2014	25 Jun 2014	08 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
B1	SE129159.010	LB060219	24 Jun 2014	25 Jun 2014	08 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-1	SE129159.001	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH2-1	SE129159.002	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH3-1	SE129159.003	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH3-2	SE129159.004	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH6-1	SE129159.005	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH7-1	SE129159.006	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH8-1	SE129159.007	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH8-2	SE129159.008	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH9-1	SE129159.009	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
B1	SE129159.010	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
RB	SE129159.011	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-1	SE129159.001	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH2-1	SE129159.002	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH3-1	SE129159.003	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH3-2	SE129159.004	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH6-1	SE129159.005	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

HOLDING TIME SUMMARY

SE129159 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

OP Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH7-1	SE129159.006	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH8-1	SE129159.007	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH8-2	SE129159.008	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH9-1	SE129159.009	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
B1	SE129159.010	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
RB	SE129159.011	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-1	SE129159.001	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH2-1	SE129159.002	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH3-1	SE129159.003	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH3-2	SE129159.004	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH6-1	SE129159.005	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH7-1	SE129159.006	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH8-1	SE129159.007	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH8-2	SE129159.008	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH9-1	SE129159.009	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
B1	SE129159.010	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
RB	SE129159.011	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-1	SE129159.001	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH2-1	SE129159.002	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH3-1	SE129159.003	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH3-2	SE129159.004	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH6-1	SE129159.005	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH7-1	SE129159.006	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH8-1	SE129159.007	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH8-2	SE129159.008	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH9-1	SE129159.009	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
B1	SE129159.010	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
RB	SE129159.011	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-1	SE129159.001	LB060211	24 Jun 2014	25 Jun 2014	21 Dec 2014	04 Jul 2014	21 Dec 2014	07 Jul 2014
BH2-1	SE129159.002	LB060211	24 Jun 2014	25 Jun 2014	21 Dec 2014	04 Jul 2014	21 Dec 2014	07 Jul 2014
BH3-1	SE129159.003	LB060211	24 Jun 2014	25 Jun 2014	21 Dec 2014	04 Jul 2014	21 Dec 2014	07 Jul 2014
BH3-2	SE129159.004	LB060211	24 Jun 2014	25 Jun 2014	21 Dec 2014	04 Jul 2014	21 Dec 2014	07 Jul 2014
BH6-1	SE129159.005	LB060211	24 Jun 2014	25 Jun 2014	21 Dec 2014	04 Jul 2014	21 Dec 2014	07 Jul 2014
BH7-1	SE129159.006	LB060211	24 Jun 2014	25 Jun 2014	21 Dec 2014	04 Jul 2014	21 Dec 2014	07 Jul 2014
BH8-1	SE129159.007	LB060211	24 Jun 2014	25 Jun 2014	21 Dec 2014	04 Jul 2014	21 Dec 2014	07 Jul 2014
BH8-2	SE129159.008	LB060211	24 Jun 2014	25 Jun 2014	21 Dec 2014	04 Jul 2014	21 Dec 2014	07 Jul 2014
BH9-1	SE129159.009	LB060211	24 Jun 2014	25 Jun 2014	21 Dec 2014	04 Jul 2014	21 Dec 2014	07 Jul 2014
B1	SE129159.010	LB060211	24 Jun 2014	25 Jun 2014	21 Dec 2014	04 Jul 2014	21 Dec 2014	07 Jul 2014

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB	SE129159.011	LB059997	24 Jun 2014	25 Jun 2014	21 Dec 2014	01 Jul 2014	21 Dec 2014	02 Jul 2014

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-1	SE129159.001	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH2-1	SE129159.002	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH3-1	SE129159.003	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH3-2	SE129159.004	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH6-1	SE129159.005	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH7-1	SE129159.006	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH8-1	SE129159.007	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

HOLDING TIME SUMMARY

SE129159 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH8-2	SE129159.008	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH9-1	SE129159.009	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
B1	SE129159.010	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
RB	SE129159.011	LB059990	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB	SE129159.011	LB060002	24 Jun 2014	25 Jun 2014	01 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-1	SE129159.001	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH2-1	SE129159.002	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH3-1	SE129159.003	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH3-2	SE129159.004	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH6-1	SE129159.005	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH7-1	SE129159.006	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH8-1	SE129159.007	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH8-2	SE129159.008	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH9-1	SE129159.009	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
B1	SE129159.010	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB	SE129159.011	LB060059	24 Jun 2014	25 Jun 2014	01 Jul 2014	02 Jul 2014†	11 Aug 2014	07 Jul 2014

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-1	SE129159.001	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH2-1	SE129159.002	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH3-1	SE129159.003	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH3-2	SE129159.004	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH6-1	SE129159.005	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH7-1	SE129159.006	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH8-1	SE129159.007	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH8-2	SE129159.008	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH9-1	SE129159.009	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
B1	SE129159.010	LB059953	24 Jun 2014	25 Jun 2014	08 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
RB	SE129159.011	LB060059	24 Jun 2014	25 Jun 2014	01 Jul 2014	02 Jul 2014†	11 Aug 2014	07 Jul 2014

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	114
	BH2-1	SE129159.002	%	60 - 130%	122
	BH3-1	SE129159.003	%	60 - 130%	120
	BH3-2	SE129159.004	%	60 - 130%	129
	BH6-1	SE129159.005	%	60 - 130%	114
	BH7-1	SE129159.006	%	60 - 130%	119
	BH8-1	SE129159.007	%	60 - 130%	129
	BH8-2	SE129159.008	%	60 - 130%	125
	BH9-1	SE129159.009	%	60 - 130%	123

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	90
	BH2-1	SE129159.002	%	60 - 130%	86
	BH3-1	SE129159.003	%	60 - 130%	92
	BH3-2	SE129159.004	%	60 - 130%	88
	BH6-1	SE129159.005	%	60 - 130%	90
	BH7-1	SE129159.006	%	60 - 130%	96
	BH8-1	SE129159.007	%	60 - 130%	92
	BH8-2	SE129159.008	%	60 - 130%	94
	BH9-1	SE129159.009	%	60 - 130%	90
d14-p-terphenyl (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	94
	BH2-1	SE129159.002	%	60 - 130%	102
	BH3-1	SE129159.003	%	60 - 130%	104
	BH3-2	SE129159.004	%	60 - 130%	102
	BH6-1	SE129159.005	%	60 - 130%	106
	BH7-1	SE129159.006	%	60 - 130%	114
	BH8-1	SE129159.007	%	60 - 130%	112
	BH8-2	SE129159.008	%	60 - 130%	108
	BH9-1	SE129159.009	%	60 - 130%	110

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	90
	BH2-1	SE129159.002	%	60 - 130%	86
	BH3-1	SE129159.003	%	60 - 130%	92
	BH3-2	SE129159.004	%	60 - 130%	88
	BH6-1	SE129159.005	%	60 - 130%	90
	BH7-1	SE129159.006	%	60 - 130%	96
	BH8-1	SE129159.007	%	60 - 130%	92
	BH8-2	SE129159.008	%	60 - 130%	94
	BH9-1	SE129159.009	%	60 - 130%	90
d14-p-terphenyl (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	94
	BH2-1	SE129159.002	%	60 - 130%	102
	BH3-1	SE129159.003	%	60 - 130%	104
	BH3-2	SE129159.004	%	60 - 130%	102
	BH6-1	SE129159.005	%	60 - 130%	106
	BH7-1	SE129159.006	%	60 - 130%	114
	BH8-1	SE129159.007	%	60 - 130%	112
	BH8-2	SE129159.008	%	60 - 130%	108
	BH9-1	SE129159.009	%	60 - 130%	110
d5-nitrobenzene (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	92
	BH2-1	SE129159.002	%	60 - 130%	92
	BH3-1	SE129159.003	%	60 - 130%	96
	BH3-2	SE129159.004	%	60 - 130%	94
	BH6-1	SE129159.005	%	60 - 130%	98
	BH7-1	SE129159.006	%	60 - 130%	96
	BH8-1	SE129159.007	%	60 - 130%	94
	BH8-2	SE129159.008	%	60 - 130%	100
	BH9-1	SE129159.009	%	60 - 130%	102

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	114
	BH2-1	SE129159.002	%	60 - 130%	122
	BH3-1	SE129159.003	%	60 - 130%	120
	BH3-2	SE129159.004	%	60 - 130%	129
	BH6-1	SE129159.005	%	60 - 130%	114
	BH7-1	SE129159.006	%	60 - 130%	119
	BH8-1	SE129159.007	%	60 - 130%	129
	BH8-2	SE129159.008	%	60 - 130%	125
	BH9-1	SE129159.009	%	60 - 130%	123

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	73
	BH2-1	SE129159.002	%	60 - 130%	70
	BH3-1	SE129159.003	%	60 - 130%	74
	BH3-2	SE129159.004	%	60 - 130%	73
	BH6-1	SE129159.005	%	60 - 130%	79
	BH7-1	SE129159.006	%	60 - 130%	77
	BH8-1	SE129159.007	%	60 - 130%	71
	BH8-2	SE129159.008	%	60 - 130%	91
	BH9-1	SE129159.009	%	60 - 130%	79
	B1	SE129159.010	%	60 - 130%	84
d4-1,2-dichloroethane (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	94
	BH2-1	SE129159.002	%	60 - 130%	100
	BH3-1	SE129159.003	%	60 - 130%	94
	BH3-2	SE129159.004	%	60 - 130%	89
	BH6-1	SE129159.005	%	60 - 130%	113
	BH7-1	SE129159.006	%	60 - 130%	110
	BH8-1	SE129159.007	%	60 - 130%	75
	BH8-2	SE129159.008	%	60 - 130%	77
	BH9-1	SE129159.009	%	60 - 130%	90
	B1	SE129159.010	%	60 - 130%	90
d8-toluene (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	90
	BH2-1	SE129159.002	%	60 - 130%	107
	BH3-1	SE129159.003	%	60 - 130%	88
	BH3-2	SE129159.004	%	60 - 130%	123
	BH6-1	SE129159.005	%	60 - 130%	118
	BH7-1	SE129159.006	%	60 - 130%	84
	BH8-1	SE129159.007	%	60 - 130%	107
	BH8-2	SE129159.008	%	60 - 130%	115
	BH9-1	SE129159.009	%	60 - 130%	93
	B1	SE129159.010	%	60 - 130%	108
Dibromofluoromethane (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	86
	BH2-1	SE129159.002	%	60 - 130%	72
	BH3-1	SE129159.003	%	60 - 130%	75
	BH3-2	SE129159.004	%	60 - 130%	89
	BH6-1	SE129159.005	%	60 - 130%	83
	BH7-1	SE129159.006	%	60 - 130%	85
	BH8-1	SE129159.007	%	60 - 130%	74
	BH8-2	SE129159.008	%	60 - 130%	71
	BH9-1	SE129159.009	%	60 - 130%	72
	B1	SE129159.010	%	60 - 130%	72

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	RB	SE129159.011	%	40 - 130%	95
d4-1,2-dichloroethane (Surrogate)	RB	SE129159.011	%	40 - 130%	100
d8-toluene (Surrogate)	RB	SE129159.011	%	40 - 130%	95
Dibromofluoromethane (Surrogate)	RB	SE129159.011	%	40 - 130%	120

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	73
	BH2-1	SE129159.002	%	60 - 130%	70
	BH3-1	SE129159.003	%	60 - 130%	74
	BH3-2	SE129159.004	%	60 - 130%	73
	BH6-1	SE129159.005	%	60 - 130%	79
	BH7-1	SE129159.006	%	60 - 130%	77
	BH8-1	SE129159.007	%	60 - 130%	71
	BH8-2	SE129159.008	%	60 - 130%	91
	BH9-1	SE129159.009	%	60 - 130%	79
	B1	SE129159.010	%	60 - 130%	84
d4-1,2-dichloroethane (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	94
	BH2-1	SE129159.002	%	60 - 130%	100
	BH3-1	SE129159.003	%	60 - 130%	94
	BH3-2	SE129159.004	%	60 - 130%	89
	BH6-1	SE129159.005	%	60 - 130%	113
	BH7-1	SE129159.006	%	60 - 130%	110
	BH8-1	SE129159.007	%	60 - 130%	75
	BH8-2	SE129159.008	%	60 - 130%	77
	BH9-1	SE129159.009	%	60 - 130%	90
	B1	SE129159.010	%	60 - 130%	90
d8-toluene (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	90
	BH2-1	SE129159.002	%	60 - 130%	107
	BH3-1	SE129159.003	%	60 - 130%	88
	BH3-2	SE129159.004	%	60 - 130%	123
	BH6-1	SE129159.005	%	60 - 130%	118
	BH7-1	SE129159.006	%	60 - 130%	84
	BH8-1	SE129159.007	%	60 - 130%	107
	BH8-2	SE129159.008	%	60 - 130%	115
	BH9-1	SE129159.009	%	60 - 130%	93
	B1	SE129159.010	%	60 - 130%	108
Dibromofluoromethane (Surrogate)	BH1-1	SE129159.001	%	60 - 130%	86
	BH2-1	SE129159.002	%	60 - 130%	72
	BH3-1	SE129159.003	%	60 - 130%	75
	BH3-2	SE129159.004	%	60 - 130%	89
	BH6-1	SE129159.005	%	60 - 130%	83
	BH7-1	SE129159.006	%	60 - 130%	85
	BH8-1	SE129159.007	%	60 - 130%	74
	BH8-2	SE129159.008	%	60 - 130%	71
	BH9-1	SE129159.009	%	60 - 130%	72
	B1	SE129159.010	%	60 - 130%	72

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	RB	SE129159.011	%	60 - 130%	95
d4-1,2-dichloroethane (Surrogate)	RB	SE129159.011	%	60 - 130%	100
d8-toluene (Surrogate)	RB	SE129159.011	%	60 - 130%	95
Dibromofluoromethane (Surrogate)	RB	SE129159.011	%	60 - 130%	120

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Number	Parameter	Units	LOR	Result
LB060229.001	Mercury	mg/L	0.0001	<0.0001

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB060214.001	Mercury	mg/kg	0.01	<0.01

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB059990.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	101

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB059990.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	94
		d14-p-terphenyl (Surrogate)	%	-	100

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB059990.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB059990.001		Fluoranthene	mg/kg	0.1	<0.1
		Pyrene	mg/kg	0.1	<0.1
		Benzo(a)anthracene	mg/kg	0.1	<0.1
		Chrysene	mg/kg	0.1	<0.1
		Benzo(a)pyrene	mg/kg	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	102
		2-fluorobiphenyl (Surrogate)	%	-	94
		d14-p-terphenyl (Surrogate)	%	-	100

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB059990.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	101

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB060211.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB059997.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB059990.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB060002.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number	Parameter	Units	LOR

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB059953.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	80
		d4-1,2-dichloroethane (Surrogate)	%	-	107
		d8-toluene (Surrogate)	%	-	116
		Bromofluorobenzene (Surrogate)	%	-	78
	Totals	Total BTEX*	mg/kg	0.6	<0.6

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB060059.001	Monocyclic Aromatic	Benzene	µg/L	0.5	<0.5
	Hydrocarbons	Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	107
		d4-1,2-dichloroethane (Surrogate)	%	-	101
		d8-toluene (Surrogate)	%	-	98
		Bromofluorobenzene (Surrogate)	%	-	86

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result
LB059953.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	80
		d4-1,2-dichloroethane (Surrogate)	%	-	107
		d8-toluene (Surrogate)	%	-	116

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result
LB060059.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	107
		d4-1,2-dichloroethane (Surrogate)	%	-	101
		d8-toluene (Surrogate)	%	-	98
		Bromofluorobenzene (Surrogate)	%	-	86

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.011	LB060229.004	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.004	LB060214.014	Mercury	mg/kg	0.01	0.02	0.02	200	0
SE129226.001	LB060214.023	Mercury	mg/kg	0.01	0.000806706	70.0006705749	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129158.002	LB060219.011	% Moisture	%w/w	0.5	22	23	34	5
SE129159.006	LB060219.022	% Moisture	%	0.5	13	13	38	1
SE129163.001	LB060219.028	% Moisture	%	0.5	21.5210355987	22.4381625441	35	4

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.005	LB059990.019		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.17	0.17	30	2
SE129159.009	LB059990.024		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.009	LB059990.024		Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.19	0.18	30	2

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.005	LB059990.019		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.005	LB059990.019		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0
SE129163.001	LB059990.027		Naphthalene	mg/kg	0.1	0.13	0.16	99	21
			2-methylnaphthalene	mg/kg	0.1	0.09	0.06	163	0
			1-methylnaphthalene	mg/kg	0.1	0.13	0.06	135	26
			Acenaphthylene	mg/kg	0.1	1.02	0.36	44	96 ②
			Acenaphthene	mg/kg	0.1	0.11	0.05	155	10

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129163.001	LB059990.027		Fluorene	mg/kg	0.1	0.61	0.2	55	101 ②
			Phenanthrene	mg/kg	0.1	5.68	2.66	32	72 ②
			Anthracene	mg/kg	0.1	1.31	0.58	41	77 ②
			Fluoranthene	mg/kg	0.1	6.84	3.73	32	59 ②
			Pyrene	mg/kg	0.1	6.34	3.6	32	55 ②
			Benzo(a)anthracene	mg/kg	0.1	3.87	2.5	33	43 ②
			Chrysene	mg/kg	0.1	2.68	2.15	34	22
			Benzo(b&j)fluoranthene	mg/kg	0.1	4.17	3.36	33	22
			Benzo(k)fluoranthene	mg/kg	0.1	1.21	1.45	38	18
			Benzo(a)pyrene	mg/kg	0.1	3.04	2.7	33	12
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	2.13	1.83	35	15
			Dibenzo(a&h)anthracene	mg/kg	0.1	0.2	0.2	80	0
			Benzo(ghi)perylene	mg/kg	0.1	1.59	1.37	37	15
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	4.3607	3.8072	15	14
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	4.3607	3.8072	17	14
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	4.3607	3.8072	15	14
			Total PAH	mg/kg	0.8	41.15	27.02	32	41 ②
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.47	0.56	30	17
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.47	0.5	30	6
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.49	0.5	30	2

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.005	LB059990.019		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	2
SE129159.009	LB059990.024		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	2

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.004	LB060211.014	Arsenic, As	mg/kg	3	9	10	41	15
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	146	0
		Chromium, Cr	mg/kg	0.3	15	16	33	5
		Copper, Cu	mg/kg	0.5	13	14	34	11
		Lead, Pb	mg/kg	1	23	24	34	6
		Nickel, Ni	mg/kg	0.5	3.2	3.1	46	1
		Zinc, Zn	mg/kg	0.5	37	42	35	13
SE129226.001	LB060211.024	Arsenic, As	mg/kg	3	3.27521551722.7362338362		63	18
		Cadmium, Cd	mg/kg	0.3	0.5859105603 0.6899542025		77	16
		Chromium, Cr	mg/kg	0.3	10.1158135778 0.7417564655		35	6
		Copper, Cu	mg/kg	0.5	31.1336206898 3.3763469827		32	7
		Lead, Pb	mg/kg	1	9.27357219829.9043642241		40	7
		Nickel, Ni	mg/kg	0.5	36.6874999998 8.8973599137		31	6
		Zinc, Zn	mg/kg	0.5	50.8841594825 3.0775862068		34	4

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129189.001	LB059997.014		Copper, Cu	µg/L	1	1.475	1.482	83	0
			Zinc, Zn	µg/L	5	6.681	6.551	91	2
SE129195.014	LB059997.023		Arsenic, As	µg/L	1	<1	<1	200	0
			Cadmium, Cd	µg/L	0.1	<0.1	<0.1	200	0
			Chromium, Cr	µg/L	1	<1	<1	200	0
			Copper, Cu	µg/L	1	<1	<1	200	0
			Lead, Pb	µg/L	1	<1	<1	200	0
			Nickel, Ni	µg/L	1	<1	<1	200	0
			Zinc, Zn	µg/L	5	<5	<5	200	0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.005	LB059990.018		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0
SE129159.009	LB059990.023		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.004	LB059953.014	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	4.1	50	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	5.7	50	25
			d8-toluene (Surrogate)	mg/kg	-	6.2	5.8	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	3.7	50	0
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
SE129163.001	LB059953.022	Monocyclic	Benzene	mg/kg	0.1	0	0	200	0
		Aromatic	Toluene	mg/kg	0.1	0	0	200	0
			Ethylbenzene	mg/kg	0.1	0	0	200	0
			m/p-xylene	mg/kg	0.2	0	0	200	0
			o-xylene	mg/kg	0.1	0	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.27	4.29	50	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.43	3.9	50	33
			d8-toluene (Surrogate)	mg/kg	-	5.12	4.82	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.58	3.93	50	9
		Totals	Total Xylenes*	mg/kg	0.3	0	0	200	0
			Total BTEX*	mg/kg	0.6	0	0	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Original	Duplicate		Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433/AN434/AN410**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.004	LB059953.014		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.4	4.1	30	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	5.7	30	25
			d8-toluene (Surrogate)	mg/kg	-	6.2	5.8	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.7	3.7	30	0
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE129163.001	LB059953.022		TRH C6-C10	mg/kg	25	0	0	200	0
			TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.27	4.29	30	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.43	3.9	30	33 †
			d8-toluene (Surrogate)	mg/kg	-	5.12	4.82	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.58	3.93	30	9
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0	0	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	0	0	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060214.002	Mercury	mg/kg	0.01	0.21	0.2	70 - 130	103

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059990.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	75
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	75
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	75
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	70
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	75
		p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	65
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.17	0.15	40 - 130	113

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059990.002		Dichlorvos	mg/kg	0.5	1.8	2	60 - 140	92
		Diazinon (Dimpylate)	mg/kg	0.5	1.7	2	60 - 140	87
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.6	2	60 - 140	82
		Ethion	mg/kg	0.2	1.4	2	60 - 140	70
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059990.002		Naphthalene	mg/kg	0.1	4.2	4	60 - 140	105
		Acenaphthylene	mg/kg	0.1	4.2	4	60 - 140	106
		Acenaphthene	mg/kg	0.1	4.9	4	60 - 140	123
		Phenanthrene	mg/kg	0.1	4.1	4	60 - 140	103
		Anthracene	mg/kg	0.1	3.9	4	60 - 140	98
		Fluoranthene	mg/kg	0.1	4.0	4	60 - 140	100
		Pyrene	mg/kg	0.1	3.4	4	60 - 140	85
		Benzo(a)pyrene	mg/kg	0.1	4.3	4	60 - 140	109
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059990.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	124

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060211.002	Arsenic, As	mg/kg	3	52	50	80 - 120	104
	Cadmium, Cd	mg/kg	0.3	52	50	80 - 120	103
	Chromium, Cr	mg/kg	0.3	52	50	80 - 120	103
	Copper, Cu	mg/kg	0.5	52	50	80 - 120	103
	Lead, Pb	mg/kg	1	51	50	80 - 120	102
	Nickel, Ni	mg/kg	0.5	53	50	80 - 120	105
	Zinc, Zn	mg/kg	0.5	52	50	80 - 120	104

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059997.002	Arsenic, As	µg/L	1	19	20	80 - 120	97
	Cadmium, Cd	µg/L	0.1	20	20	80 - 120	100
	Chromium, Cr	µg/L	1	20	20	80 - 120	101
	Copper, Cu	µg/L	1	20	20	80 - 120	98
	Lead, Pb	µg/L	1	20	20	80 - 120	99
	Nickel, Ni	µg/L	1	20	20	80 - 120	100
	Zinc, Zn	µg/L	5	21	20	80 - 120	107

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059990.002		TRH C10-C14	mg/kg	20	36	40	60 - 140	90
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	88
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	88
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	36	40	60 - 140	90
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	83
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	95

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060002.002		TRH C10-C14	µg/L	50	1100	1200	60 - 140	89
		TRH C15-C28	µg/L	200	1200	1200	60 - 140	96
		TRH C29-C36	µg/L	200	1100	1200	60 - 140	93
	TRH F Bands	TRH >C10-C16 (F2)	µg/L	60	1100	1200	60 - 140	90
		TRH >C16-C34 (F3)	µg/L	500	1200	1200	60 - 140	97
		TRH >C34-C40 (F4)	µg/L	500	620	600	60 - 140	104

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059953.002	Monocyclic	Benzene	mg/kg	0.1	3.1	2.9	60 - 140	107
	Aromatic	Toluene	mg/kg	0.1	3.9	2.9	60 - 140	135
		Ethylbenzene	mg/kg	0.1	3.4	2.9	60 - 140	118
		m/p-xylene	mg/kg	0.2	5.2	5.8	60 - 140	89
		o-xylene	mg/kg	0.1	3.5	2.9	60 - 140	119
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	5	60 - 140	77
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	5	60 - 140	79
		d8-toluene (Surrogate)	mg/kg	-	5.6	5	60 - 140	111
		Bromofluorobenzene (Surrogate)	mg/kg	-	3.6	5	60 - 140	71

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060059.002	Monocyclic	Benzene	µg/L	0.5	51	45.45	60 - 140	112
	Aromatic	Toluene	µg/L	0.5	51	45.45	60 - 140	113
		Ethylbenzene	µg/L	0.5	51	45.45	60 - 140	113
		m/p-xylene	µg/L	1	100	90.9	60 - 140	112
		o-xylene	µg/L	0.5	51	45.45	60 - 140	113
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.9	5	60 - 140	97
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.9	5	60 - 140	98
		d8-toluene (Surrogate)	µg/L	-	5.0	5	60 - 140	100
		Bromofluorobenzene (Surrogate)	µg/L	-	5.0	5	60 - 140	101

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059953.002		TRH C6-C10	mg/kg	25	28	24.65	60 - 140	113
		TRH C6-C9	mg/kg	20	24	23.2	60 - 140	104
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	5	60 - 140	77
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	5	60 - 140	79
		d8-toluene (Surrogate)	mg/kg	-	5.6	5	60 - 140	111
		Bromofluorobenzene (Surrogate)	mg/kg	-	3.6	5	60 - 140	71
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	121

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060059.002		TRH C6-C10	µg/L	50	1000	946.63	60 - 140	107
		TRH C6-C9	µg/L	40	830	818.71	60 - 140	101
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.9	5	60 - 140	97
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.9	5	60 - 140	98
		d8-toluene (Surrogate)	µg/L	-	5.0	5	60 - 140	100
		Bromofluorobenzene (Surrogate)	µg/L	-	5.0	5	60 - 140	101
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	710	639.67	60 - 140	110

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub -sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129159.011	LB060229.005	Mercury	mg/L	0.0001	0.0082	<0.0001	0.008	103

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.001	LB060214.004	Mercury	mg/kg	0.01	0.20	<0.01	0.2	100

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129159.001	LB059990.012		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Lindane	mg/kg	0.1	<0.1	<0.1	-	-
			Heptachlor	mg/kg	0.1	0.2	<0.1	0.2	120
			Aldrin	mg/kg	0.1	0.3	<0.1	0.2	125
			Beta BHC	mg/kg	0.1	<0.1	<0.1	-	-
			Delta BHC	mg/kg	0.1	0.2	<0.1	0.2	115
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-	-
			Dieldrin	mg/kg	0.2	0.2	<0.2	0.2	115
			Endrin	mg/kg	0.2	0.2	<0.2	0.2	120
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-	-
			p,p'-DDT	mg/kg	0.1	0.2	<0.1	0.2	110
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	-	-
			Mirex	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.17	-	90

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.004	LB059990.008		Dichlorvos	mg/kg	0.5	1.7	<0.5	2	87
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.6	<0.5	2	79
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.4	<0.2	2	71
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	1.4	<0.2	2	72
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	0.5	92
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	0.5	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.004	LB059990.008	Naphthalene	mg/kg	0.1	4.2	<0.1	4	104
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub -sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.004	LB059990.008		Acenaphthylene	mg/kg	0.1	4.2	<0.1	4	106
			Acenaphthene	mg/kg	0.1	4.6	<0.1	4	114
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	4.1	<0.1	4	103
			Anthracene	mg/kg	0.1	3.8	<0.1	4	95
			Fluoranthene	mg/kg	0.1	4.2	<0.1	4	104
			Pyrene	mg/kg	0.1	3.2	<0.1	4	81
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.5	<0.1	4	113
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ	0.2	4.5	<0.2	-	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	4.7	<0.3	-	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	4.6	<0.2	-	-
			Total PAH	mg/kg	0.8	33	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	90
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	-	92
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	98

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.004	LB059990.008		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	0.4	<0.2	0.4	97
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	-	97

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.001	LB060211.004	Arsenic, As	mg/kg	3	56	<3	50	107
		Cadmium, Cd	mg/kg	0.3	53	<0.3	50	106
		Chromium, Cr	mg/kg	0.3	54	1.4	50	106
		Copper, Cu	mg/kg	0.5	54	0.6	50	107
		Lead, Pb	mg/kg	1	54	1	50	106
		Nickel, Ni	mg/kg	0.5	55	0.6	50	109
		Zinc, Zn	mg/kg	0.5	57	3.5	50	107

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE128775A.00	LB059997.004	Arsenic, As	µg/L	1	19	<1	20	95
1		Cadmium, Cd	µg/L	0.1	20	<0.1	20	100
		Chromium, Cr	µg/L	1	19	<1	20	98
		Copper, Cu	µg/L	1	21	3	20	95
		Lead, Pb	µg/L	1	19	<1	20	96
		Nickel, Ni	µg/L	1	22	2	20	98
		Zinc, Zn	µg/L	5	23	<5	20	103

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.001	LB059953.004	Monocyclic	Benzene	mg/kg	0.1	2.1	<0.1	2.9	73
		Aromatic	Toluene	mg/kg	0.1	2.7	<0.1	2.9	94
			Ethylbenzene	mg/kg	0.1	2.8	<0.1	2.9	97
			m/p-xylene	mg/kg	0.2	5.4	<0.2	5.8	94

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub -sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.001	LB059953.004	Monocyclic	o-xylene	mg/kg	0.1	2.5	<0.1	2.9	86
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.7	5	83
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	3.7	5	89
			d8-toluene (Surrogate)	mg/kg	-	4.7	6.1	5	95
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.5	4.3	5	110
		Totals	Total Xylenes*	mg/kg	0.3	7.9	<0.3	-	-
			Total BTEX*	mg/kg	0.6	16	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.001	LB059953.004		TRH C6-C10	mg/kg	25	25	<25	24.65	102
			TRH C6-C9	mg/kg	20	23	<20	23.2	97
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.7	5	83
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	3.7	5	89
			d8-toluene (Surrogate)	mg/kg	-	4.7	6.1	5	95
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.5	4.3	5	110
		VPH F	Benzene (F0)	mg/kg	0.1	2.1	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	133

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.001	LB059990.013		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	-
			Lindane	mg/kg	0.1	<0.1	<0.1	200	-
			Heptachlor	mg/kg	0.1	0.2	0.3	70	8
			Aldrin	mg/kg	0.1	0.3	0.3	69	4
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	-
			Delta BHC	mg/kg	0.1	0.2	0.3	72	8
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	-
			Dieldrin	mg/kg	0.2	0.2	0.3	72	8
			Endrin	mg/kg	0.2	0.2	0.3	70	8
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	-
			p,p'-DDT	mg/kg	0.1	0.2	0.2	73	9
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	-
			Mirex	mg/kg	0.1	<0.1	<0.1	200	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.14	30	2

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129158.004	LB059990.009		Dichlorvos	mg/kg	0.5	1.7	1.8	58	4
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.6	1.7	60	10
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	-
			Malathion	mg/kg	0.2	<0.2	<0.2	200	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.4	1.5	169	3
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	-
			Ethion	mg/kg	0.2	1.4	1.5	44	1
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129158.004	LB059990.009		Naphthalene	mg/kg	0.1	4.2	4.4	32	6
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	-
			Acenaphthylene	mg/kg	0.1	4.2	4.6	32	9
			Acenaphthene	mg/kg	0.1	4.6	5.0	32	10
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	-
			Phenanthrene	mg/kg	0.1	4.1	4.2	32	2
			Anthracene	mg/kg	0.1	3.8	4.0	33	5
			Fluoranthene	mg/kg	0.1	4.2	4.2	32	1
			Pyrene	mg/kg	0.1	3.2	3.8	33	17
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	-
			Benzo(a)pyrene	mg/kg	0.1	4.5	4.6	32	1
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	-
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ	0.2	4.5	4.6	14	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	4.7	4.7	16	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	4.6	4.6	14	-
			Total PAH	mg/kg	0.8	33	35	32	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129158.004	LB059990.009		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	-
			Arochlor 1260	mg/kg	0.2	0.4	0.4	83	4
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	1

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Duplicate
SE129158.001	LB059990.005		TRH C10-C14	mg/kg	20	36
			TRH C15-C28	mg/kg	45	<45
			TRH C29-C36	mg/kg	45	<45
			TRH C37-C40	mg/kg	100	<100
			TRH C10-C36 Total	mg/kg	110	<110
			TRH C10-C40 Total	mg/kg	210	<210
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	36
			TRH >C16-C34 (F3)	mg/kg	90	<90
			TRH >C34-C40 (F4)	mg/kg	120	<120

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

*	Non-accredited analysis.
-	Sample not analysed for this analyte.
^	Analysis performed by external laboratory.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

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ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

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Project	**E22232 - 165 Milton St - Ashbury-Batch 1**
Order Number	**E22232**
Samples	11

LABORATORY DETAILS

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SGS Reference	SE129159 R0
Report Number	0000086508
Date Reported	08 Jul 2014
Date Received	25 Jun 2014

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all samples using trace analysis technique.
Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

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Metals/Inorganics Team Leader

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Asbestos Analyst

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w
SE129159.001	BH1-1	Soil	55 g Clay,sand	24 Jun 2014	No Asbestos Found	< 0.01
SE129159.002	BH2-1	Soil	57 g Sand	24 Jun 2014	No Asbestos Found	< 0.01
SE129159.003	BH3-1	Soil	168 g Clay,sand	24 Jun 2014	No Asbestos Found	< 0.01
SE129159.004	BH3-2	Soil	173 g Clay,sand,soil,rocks	24 Jun 2014	No Asbestos Found Organic Fibres Detected	< 0.01
SE129159.005	BH6-1	Soil	13 g Sand,soil	24 Jun 2014	No Asbestos Found Organic Fibres Detected	< 0.01
SE129159.006	BH7-1	Soil	94 g Clay,sand,soil,rocks	24 Jun 2014	No Asbestos Found Organic Fibres Detected	< 0.01
SE129159.007	BH8-1	Soil	74 g Clay,sand,soil,rocks	24 Jun 2014	No Asbestos Found Organic Fibres Detected	< 0.01
SE129159.008	BH8-2	Soil	79 g Clay,sand,soil,rocks	24 Jun 2014	No Asbestos Found Organic Fibres Detected	< 0.01
SE129159.009	BH9-1	Soil	65 g Clay,sand	24 Jun 2014	No Asbestos Found	< 0.01

METHOD SUMMARY

SE129159 R0

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	Not Accredited
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarized light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarized light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarized light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au.pv.sgsv3/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

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Project	**E22232 - 165 Milton St - Ashbury-Batch 2**	SGS Reference	**SE129158 R0**
Order Number	**E22232**	Report Number	0000086483
Samples	7	Date Reported	07 Jul 2014
		Date Received	30 Jun 2014

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

Sample # 7 : ashed after initial stereo microscope examination, re-examined and trace analysis performed on samples where asbestos has not been detected.
No trace asbestos fibres detected using trace analysis technique.
Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

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Asbestos Analyst

Parameter	Units	LOR	Sample Number: SE129158.001 Sample Matrix: Soil Sample Date: 25 Jun 2014 Sample Name: BH10-1	SE129158.002 Soil 25 Jun 2014 BH10-2	SE129158.003 Soil 25 Jun 2014 BH11-1	SE129158.004 Soil 25 Jun 2014 BH12-1
VOC's in Soil Method: AN433/AN434						
Monocyclic Aromatic Hydrocarbons						
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Polycyclic VOCs						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Surrogates						
Dibromofluoromethane (Surrogate)	%	-	**74**	**73**	**71**	**70**
d4-1,2-dichloroethane (Surrogate)	%	-	**75**	**85**	**95**	**72**
d8-toluene (Surrogate)	%	-	**121**	**89**	**99**	**121**
Bromofluorobenzene (Surrogate)	%	-	**85**	**71**	**76**	**77**
Totals						
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	<0.6
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410						
TRH C6-C10	mg/kg	25	<25	<25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20	<20	<20
Surrogates						
Dibromofluoromethane (Surrogate)	%	-	**74**	**73**	**71**	**70**
d4-1,2-dichloroethane (Surrogate)	%	-	**75**	**85**	**95**	**72**
d8-toluene (Surrogate)	%	-	**121**	**89**	**99**	**121**
Bromofluorobenzene (Surrogate)	%	-	**85**	**71**	**76**	**77**

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE129158.001 Soil 25 Jun 2014 BH10-1	SE129158.002 Soil 25 Jun 2014 BH10-2	SE129158.003 Soil 25 Jun 2014 BH11-1	SE129158.004 Soil 25 Jun 2014 BH12-1
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410 (continued)							
VPH F Bands							
Benzene (F0)	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25		<25	<25	<25	<25
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403							
TRH C10-C14	mg/kg	20		<20	<20	<20	<20
TRH C15-C28	mg/kg	45		<45	<45	<45	<45
TRH C29-C36	mg/kg	45		<45	<45	<45	<45
TRH C37-C40	mg/kg	100		<100	<100	<100	<100
TRH C10-C36 Total	mg/kg	110		<110	<110	<110	<110
TRH C10-C40 Total	mg/kg	210		<210	<210	<210	<210
TRH F Bands							
TRH >C10-C16 (F2)	mg/kg	25		<25	<25	<25	<25
TRH >C16-C34 (F3)	mg/kg	90		<90	<90	<90	<90
TRH >C34-C40 (F4)	mg/kg	120		<120	<120	<120	<120
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420							
Naphthalene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Fluorene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Anthracene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Pyrene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Chrysene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1		<0.1	<0.1	<0.1	<0.1
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2		<0.2	<0.2	<0.2	<0.2
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3		<0.3	<0.3	<0.3	<0.3
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2		<0.2	<0.2	<0.2	<0.2
Total PAH	mg/kg	0.8		<0.8	<0.8	<0.8	<0.8

Parameter	Units	LOR	Sample Number: SE129158.001 Sample Matrix: Soil Sample Date: 25 Jun 2014 Sample Name: BH10-1	SE129158.002 Soil 25 Jun 2014 BH10-2	SE129158.003 Soil 25 Jun 2014 BH11-1	SE129158.004 Soil 25 Jun 2014 BH12-1
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 (continued)						
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	**92**	**92**	**92**	**98**
2-fluorobiphenyl (Surrogate)	%	-	**86**	**88**	**90**	**88**
d14-p-terphenyl (Surrogate)	%	-	**100**	**100**	**102**	**102**
OC Pesticides in Soil Method: AN400/AN420						
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1	<0.1	<0.1
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**93**	**115**	**107**	**98**
OP Pesticides in Soil Method: AN400/AN420						
Dichlorvos	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2

Parameter	Units	LOR	Sample Number: SE129158.001 Sample Matrix: Soil Sample Date: 25 Jun 2014 Sample Name: BH10-1	SE129158.002 Soil 25 Jun 2014 BH10-2	SE129158.003 Soil 25 Jun 2014 BH11-1	SE129158.004 Soil 25 Jun 2014 BH12-1
OP Pesticides in Soil Method: AN400/AN420 (continued)						
Surrogates						
2-fluorobiphenyl (Surrogate)	%	-	**86**	**88**	**90**	**88**
d14-p-terphenyl (Surrogate)	%	-	**100**	**100**	**102**	**102**
PCBs in Soil Method: AN400/AN420						
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1	<1	<1
Surrogates						
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**93**	**115**	**107**	**98**
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320						
Arsenic, As	mg/kg	3	<3	**16**	**9**	**5**
Cadmium, Cd	mg/kg	0.3	<0.3	**0.3**	<0.3	<0.3
Chromium, Cr	mg/kg	0.3	**1.4**	**15**	**12**	**2.8**
Copper, Cu	mg/kg	0.5	**0.6**	**19**	**7.6**	**2.2**
Lead, Pb	mg/kg	1	**1**	**23**	**15**	**3**
Nickel, Ni	mg/kg	0.5	**0.6**	**1.6**	**7.1**	**4.9**
Zinc, Zn	mg/kg	0.5	**3.5**	**30**	**15**	**5.2**
Mercury in Soil Method: AN312						
Mercury	mg/kg	0.01	<0.01	**0.02**	<0.01	<0.01
Fibre Identification in soil Method: AN602						
FibreID						
Asbestos Detected	No unit	-	No	No	No	No
SemiQuant						
Estimated Fibres	%w/w	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fibre ID in bulk materials Method: AN602						
FibreID						
Asbestos Detected	No unit	-	-	-	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE129158.001 Soil 25 Jun 2014 BH10-1	SE129158.002 Soil 25 Jun 2014 BH10-2	SE129158.003 Soil 25 Jun 2014 BH11-1	SE129158.004 Soil 25 Jun 2014 BH12-1
Moisture Content Method: AN002							
% Moisture	%	0.5		**2.4**	**22**	**21**	**4.5**

Parameter	Units	LOR	Sample Number: SE129158.005 Sample Matrix: Soil Sample Date: 25 Jun 2014 Sample Name: BH13-1	SE129158.006 Soil 25 Jun 2014 BH13-2	SE129158.007 Material 25 Jun 2014 A1
VOC's in Soil Method: AN433/AN434					
Monocyclic Aromatic Hydrocarbons					
Benzene	mg/kg	0.1	<0.1	<0.1	-
Toluene	mg/kg	0.1	<0.1	<0.1	-
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	-
m/p-xylene	mg/kg	0.2	<0.2	<0.2	-
o-xylene	mg/kg	0.1	<0.1	<0.1	-
Polycyclic VOCs					
Naphthalene	mg/kg	0.1	<0.1	<0.1	-
Surrogates					
Dibromofluoromethane (Surrogate)	%	-	**79**	**86**	-
d4-1,2-dichloroethane (Surrogate)	%	-	**103**	**94**	-
d8-toluene (Surrogate)	%	-	**102**	**119**	-
Bromofluorobenzene (Surrogate)	%	-	**77**	**71**	-
Totals					
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	-
Total BTEX*	mg/kg	0.6	<0.6	<0.6	-
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410					
TRH C6-C10	mg/kg	25	<25	<25	-
TRH C6-C9	mg/kg	20	<20	<20	-
Surrogates					
Dibromofluoromethane (Surrogate)	%	-	**79**	**86**	-
d4-1,2-dichloroethane (Surrogate)	%	-	**103**	**94**	-
d8-toluene (Surrogate)	%	-	**102**	**119**	-
Bromofluorobenzene (Surrogate)	%	-	**77**	**71**	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name SE129158.005 Soil 25 Jun 2014 BH13-1	SE129158.006 Soil 25 Jun 2014 BH13-2	SE129158.007 Material 25 Jun 2014 A1
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410 (continued)					
VPH F Bands					
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	-
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403					
TRH C10-C14	mg/kg	20	<20	<20	-
TRH C15-C28	mg/kg	45	<45	<45	-
TRH C29-C36	mg/kg	45	<45	<45	-
TRH C37-C40	mg/kg	100	<100	<100	-
TRH C10-C36 Total	mg/kg	110	<110	<110	-
TRH C10-C40 Total	mg/kg	210	<210	<210	-
TRH F Bands					
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	-
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	-
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420					
Naphthalene	mg/kg	0.1	<0.1	<0.1	-
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	-
Acenaphthene	mg/kg	0.1	<0.1	<0.1	-
Fluorene	mg/kg	0.1	<0.1	<0.1	-
Phenanthrene	mg/kg	0.1	<0.1	<0.1	-
Anthracene	mg/kg	0.1	<0.1	<0.1	-
Fluoranthene	mg/kg	0.1	<0.1	<0.1	-
Pyrene	mg/kg	0.1	<0.1	<0.1	-
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-
Chrysene	mg/kg	0.1	<0.1	<0.1	-
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2	<0.2	<0.2	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	-
Total PAH	mg/kg	0.8	<0.8	<0.8	-

Parameter	Units	LOR	Sample Number: SE129158.005 Sample Matrix: Soil Sample Date: 25 Jun 2014 Sample Name: BH13-1	SE129158.006 Soil 25 Jun 2014 BH13-2	SE129158.007 Material 25 Jun 2014 A1
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 (continued)					
Surrogates					
d5-nitrobenzene (Surrogate)	%	-	**94**	**92**	-
2-fluorobiphenyl (Surrogate)	%	-	**92**	**86**	-
d14-p-terphenyl (Surrogate)	%	-	**104**	**98**	-
OC Pesticides in Soil Method: AN400/AN420					
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	-
Alpha BHC	mg/kg	0.1	<0.1	<0.1	-
Lindane	mg/kg	0.1	<0.1	<0.1	-
Heptachlor	mg/kg	0.1	<0.1	<0.1	-
Aldrin	mg/kg	0.1	<0.1	<0.1	-
Beta BHC	mg/kg	0.1	<0.1	<0.1	-
Delta BHC	mg/kg	0.1	<0.1	<0.1	-
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	-
o,p'-DDE	mg/kg	0.1	<0.1	<0.1	-
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	-
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	-
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	-
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	-
p,p'-DDE	mg/kg	0.1	<0.1	<0.1	-
Dieldrin	mg/kg	0.2	<0.2	<0.2	-
Endrin	mg/kg	0.2	<0.2	<0.2	-
o,p'-DDD	mg/kg	0.1	<0.1	<0.1	-
o,p'-DDT	mg/kg	0.1	<0.1	<0.1	-
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	-
p,p'-DDD	mg/kg	0.1	<0.1	<0.1	-
p,p'-DDT	mg/kg	0.1	<0.1	<0.1	-
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	-
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	-
Methoxychlor	mg/kg	0.1	<0.1	<0.1	-
Endrin Ketone	mg/kg	0.1	<0.1	<0.1	-
Isodrin	mg/kg	0.1	<0.1	<0.1	-
Mirex	mg/kg	0.1	<0.1	<0.1	-
Surrogates					
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**112**	**106**	-
OP Pesticides in Soil Method: AN400/AN420					
Dichlorvos	mg/kg	0.5	<0.5	<0.5	-
Dimethoate	mg/kg	0.5	<0.5	<0.5	-
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	-
Fenitrothion	mg/kg	0.2	<0.2	<0.2	-
Malathion	mg/kg	0.2	<0.2	<0.2	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	-
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-
Methidathion	mg/kg	0.5	<0.5	<0.5	-
Ethion	mg/kg	0.2	<0.2	<0.2	-
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-

Parameter	Units	LOR	Sample Number: SE129158.005 Sample Matrix: Soil Sample Date: 25 Jun 2014 Sample Name: BH13-1	SE129158.006 Soil 25 Jun 2014 BH13-2	SE129158.007 Material 25 Jun 2014 A1
OP Pesticides in Soil Method: AN400/AN420 (continued)					
Surrogates					
2-fluorobiphenyl (Surrogate)	%	-	**92**	**86**	-
d14-p-terphenyl (Surrogate)	%	-	**104**	**98**	-
PCBs in Soil Method: AN400/AN420					
Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-
Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-
Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-
Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-
Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-
Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-
Arochlor 1260	mg/kg	0.2	<0.2	<0.2	-
Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-
Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-
Total PCBs (Arochlors)	mg/kg	1	<1	<1	-
Surrogates					
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**112**	**106**	-
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320					
Arsenic, As	mg/kg	3	**10**	**9**	-
Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	-
Chromium, Cr	mg/kg	0.3	**12**	**6.2**	-
Copper, Cu	mg/kg	0.5	**9.8**	**13**	-
Lead, Pb	mg/kg	1	**17**	**15**	-
Nickel, Ni	mg/kg	0.5	**1.3**	**0.9**	-
Zinc, Zn	mg/kg	0.5	**32**	**13**	-
Mercury in Soil Method: AN312					
Mercury	mg/kg	0.01	<0.01	<0.01	-
Fibre Identification in soil Method: AN602					
FibreID					
Asbestos Detected	No unit	-	No	No	-
SemiQuant					
Estimated Fibres	%w/w	0.01	< 0.01	< 0.01	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name SE129158.005 Soil 25 Jun 2014 BH13-1	SE129158.006 Soil 25 Jun 2014 BH13-2	SE129158.007 Material 25 Jun 2014 A1
Fibre ID in bulk materials Method: AN602					
FibreID					
Asbestos Detected	No unit	-	-	-	No
Moisture Content Method: AN002					
% Moisture	%	0.5	**19**	**13**	-

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Mercury in Soil **Method: ME-(AU)-[ENV]AN312**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB060214	mg/kg	0.01	<0.01	0%	103%	100%

Moisture Content **Method: ME-(AU)-[ENV]AN002**

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB060219	%	0.5	1 - 5%

OC Pesticides in Soil **Method: ME-(AU)-[ENV]AN400/AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Hexachlorobenzene (HCB)	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Alpha BHC	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Lindane	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Heptachlor	LB059990	mg/kg	0.1	<0.1	0%	75%	120%	8%
Aldrin	LB059990	mg/kg	0.1	<0.1	0%	75%	125%	4%
Beta BHC	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Delta BHC	LB059990	mg/kg	0.1	<0.1	0%	75%	115%	8%
Heptachlor epoxide	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
o,p'-DDE	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Alpha Endosulfan	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Gamma Chlordane	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Alpha Chlordane	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
trans-Nonachlor	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
p,p'-DDE	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Dieldrin	LB059990	mg/kg	0.2	<0.2	0%	70%	115%	8%
Endrin	LB059990	mg/kg	0.2	<0.2	0%	75%	120%	8%
o,p'-DDD	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
o,p'-DDT	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Beta Endosulfan	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
p,p'-DDD	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
p,p'-DDT	LB059990	mg/kg	0.1	<0.1	0%	65%	110%	9%
Endosulfan sulphate	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Endrin Aldehyde	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Methoxychlor	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Endrin Ketone	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Isodrin	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Mirex	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB059990	%	-	101%	2%	113%	90%	2%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

OP Pesticides in Soil Method: ME-(AU)-[ENV]AN400/AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Dichlorvos	LB059990	mg/kg	0.5	<0.5	0%	92%	87%	4%
Dimethoate	LB059990	mg/kg	0.5	<0.5	0%	NA	NA	NA
Diazinon (Dimpylate)	LB059990	mg/kg	0.5	<0.5	0%	87%	79%	10%
Fenitrothion	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Malathion	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Chlorpyrifos (Chlorpyrifos Ethyl)	LB059990	mg/kg	0.2	<0.2	0%	82%	71%	3%
Parathion-ethyl (Parathion)	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Bromophos Ethyl	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Methidathion	LB059990	mg/kg	0.5	<0.5	0%	NA	NA	NA
Ethion	LB059990	mg/kg	0.2	<0.2	0%	70%	72%	1%
Azinphos-methyl (Guthion)	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
2-fluorobiphenyl (Surrogate)	LB059990	%	-	94%	2%	92%	92%	4%
d14-p-terphenyl (Surrogate)	LB059990	%	-	100%	0%	102%	98%	6%

PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: ME-(AU)-[ENV]AN420

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Naphthalene	LB059990	mg/kg	0.1	<0.1	0 - 21%	105%	104%	6%
2-methylnaphthalene	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
1-methylnaphthalene	LB059990	mg/kg	0.1	<0.1	0 - 26%	NA	NA	NA
Acenaphthylene	LB059990	mg/kg	0.1	<0.1	0 - 96%	106%	106%	9%
Acenaphthene	LB059990	mg/kg	0.1	<0.1	0 - 10%	123%	114%	10%
Fluorene	LB059990	mg/kg	0.1	<0.1	0 - 101%	NA	NA	NA
Phenanthrene	LB059990	mg/kg	0.1	<0.1	0 - 72%	103%	103%	2%
Anthracene	LB059990	mg/kg	0.1	<0.1	0 - 77%	98%	95%	5%
Fluoranthene	LB059990	mg/kg	0.1	<0.1	0 - 59%	100%	104%	1%
Pyrene	LB059990	mg/kg	0.1	<0.1	0 - 55%	85%	81%	17%
Benzo(a)anthracene	LB059990	mg/kg	0.1	<0.1	0 - 43%	NA	NA	NA
Chrysene	LB059990	mg/kg	0.1	<0.1	0 - 22%	NA	NA	NA
Benzo(b&j)fluoranthene	LB059990	mg/kg	0.1	<0.1	0 - 22%	NA	NA	NA
Benzo(k)fluoranthene	LB059990	mg/kg	0.1	<0.1	0 - 18%	NA	NA	NA
Benzo(a)pyrene	LB059990	mg/kg	0.1	<0.1	0 - 12%	109%	113%	1%
Indeno(1,2,3-cd)pyrene	LB059990	mg/kg	0.1	<0.1	0 - 15%	NA	NA	NA
Dibenzo(a&h)anthracene	LB059990	mg/kg	0.1	<0.1	0%	NA	NA	NA
Benzo(ghi)perylene	LB059990	mg/kg	0.1	<0.1	0 - 15%	NA	NA	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	LB059990	TEQ	0.2	<0.2	0 - 14%	NA	NA	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	LB059990	TEQ (mg/kg)	0.3	<0.3	0 - 14%	NA	NA	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	LB059990	TEQ (mg/kg)	0.2	<0.2	0 - 14%	NA	NA	NA
Total PAH	LB059990	mg/kg	0.8	<0.8	0 - 41%	NA	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
d5-nitrobenzene (Surrogate)	LB059990	%	-	102%	2 - 17%	94%	90%	2%
2-fluorobiphenyl (Surrogate)	LB059990	%	-	94%	2 - 6%	92%	92%	4%
d14-p-terphenyl (Surrogate)	LB059990	%	-	100%	0 - 2%	102%	98%	6%

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

PCBs in Soil **Method: ME-(AU)-[ENV]AN400/AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Arochlor 1016	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Arochlor 1221	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Arochlor 1232	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Arochlor 1242	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Arochlor 1248	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Arochlor 1254	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Arochlor 1260	LB059990	mg/kg	0.2	<0.2	0%	124%	97%	4%
Arochlor 1262	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Arochlor 1268	LB059990	mg/kg	0.2	<0.2	0%	NA	NA	NA
Total PCBs (Arochlors)	LB059990	mg/kg	1	<1	0%	NA	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB059990	%	-	101%	2%	113%	97%	1%

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest **Method: ME-(AU)-[ENV]AN040/AN320**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB060211	mg/kg	3	<3	15 - 18%	104%	107%
Cadmium, Cd	LB060211	mg/kg	0.3	<0.3	0 - 16%	103%	106%
Chromium, Cr	LB060211	mg/kg	0.3	<0.3	5 - 6%	103%	106%
Copper, Cu	LB060211	mg/kg	0.5	<0.5	7 - 11%	103%	107%
Lead, Pb	LB060211	mg/kg	1	<1	6 - 7%	102%	106%
Nickel, Ni	LB060211	mg/kg	0.5	<0.5	1 - 6%	105%	109%
Zinc, Zn	LB060211	mg/kg	0.5	<0.5	4 - 13%	104%	107%

TRH (Total Recoverable Hydrocarbons) in Soil **Method: ME-(AU)-[ENV]AN403**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MSD %RPD
TRH C10-C14	LB059990	mg/kg	20	<20	0%	90%	NA
TRH C15-C28	LB059990	mg/kg	45	<45	0%	88%	NA
TRH C29-C36	LB059990	mg/kg	45	<45	0%	88%	NA
TRH C37-C40	LB059990	mg/kg	100	<100	0%	NA	NA
TRH C10-C36 Total	LB059990	mg/kg	110	<110	0%	NA	NA
TRH C10-C40 Total	LB059990	mg/kg	210	<210	0%	NA	NA

TRH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MSD %RPD
TRH >C10-C16 (F2)	LB059990	mg/kg	25	<25	0%	90%	NA
TRH >C16-C34 (F3)	LB059990	mg/kg	90	<90	0%	83%	NA
TRH >C34-C40 (F4)	LB059990	mg/kg	120	<120	0%	95%	NA

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

VOC's in Soil Method: ME-(AU)-[ENV]AN433/AN434

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene	LB059953	mg/kg	0.1	<0.1	0%	107%	73%
Toluene	LB059953	mg/kg	0.1	<0.1	0%	135%	94%
Ethylbenzene	LB059953	mg/kg	0.1	<0.1	0%	118%	97%
m/p-xylene	LB059953	mg/kg	0.2	<0.2	0%	89%	94%
o-xylene	LB059953	mg/kg	0.1	<0.1	0%	119%	86%

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB059953	mg/kg	0.1	<0.1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dibromofluoromethane (Surrogate)	LB059953	%	-	80%	0 - 7%	77%	83%
d4-1,2-dichloroethane (Surrogate)	LB059953	%	-	107%	25 - 33%	79%	89%
d8-toluene (Surrogate)	LB059953	%	-	116%	6%	111%	95%
Bromofluorobenzene (Surrogate)	LB059953	%	-	78%	0 - 9%	71%	110%

Totals

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Xylenes*	LB059953	mg/kg	0.3	<0.3	0%	NA	NA
Total BTEX*	LB059953	mg/kg	0.6	<0.6	0%	NA	NA

Volatile Petroleum Hydrocarbons in Soil Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C6-C10	LB059953	mg/kg	25	<25	0%	113%	102%
TRH C6-C9	LB059953	mg/kg	20	<20	0%	104%	97%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dibromofluoromethane (Surrogate)	LB059953	%	-	80%	0 - 7%	77%	83%
d4-1,2-dichloroethane (Surrogate)	LB059953	%	-	107%	25 - 33%	79%	89%
d8-toluene (Surrogate)	LB059953	%	-	116%	6%	111%	95%
Bromofluorobenzene (Surrogate)	LB059953	%	-	78%	0 - 9%	71%	110%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene (F0)	LB059953	mg/kg	0.1	<0.1	0%	NA	NA
TRH C6-C10 minus BTEX (F1)	LB059953	mg/kg	25	<25	0%	121%	133%

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analsysis by ASS or ICP as per USEPA Method 200.8.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN088	Orbital rolling for Organic pollutants are extracted from soil/sediment by transferring an appropriate mass of sample to a clear soil jar and extracting with 1:1 Dichloromethane/Acetone. Orbital Rolling method is intended for the extraction of semi-volatile organic compounds from soil/sediment samples, and is based somewhat on USEPA method 3570 (Micro Organic extraction and sample preparation). Method 3700.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is not corrected for Naphthalene.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN433/AN434/AN410	VOCs and C6-C9/C6-C10 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	This analysis is not covered by the scope of accreditation.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
^	Performed by outside laboratory.	NVL	Not Validated

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au.pv.sgsv3/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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STATEMENT OF QA/QC PERFORMANCE

SE129158 R0

CLIENT DETAILS

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Project	**E22232 - 165 Milton St - Ashbury-Batch 2**
Order Number	**E22232**
Samples	7

LABORATORY DETAILS

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SGS Reference	SE129158 R0
Report Number	0000086484
Date Reported	07 Jul 2014

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS Environmental Services' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	PAH (Polynuclear Aromatic Hydrocarbons) in Soil	8 items
	Volatile Petroleum Hydrocarbons in Soil	1 item

SAMPLE SUMMARY

Sample counts by matrix	6 Soils & 1 Material	Type of documentation received	COC
Date documentation received	30/6/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3.7°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE129158 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre ID in bulk materials

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
A1	SE129158.007	LB060315	25 Jun 2014	30 Jun 2014	25 Jun 2015	07 Jul 2014	25 Jun 2015	07 Jul 2014

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH10-1	SE129158.001	LB060258	25 Jun 2014	30 Jun 2014	25 Jun 2015	04 Jul 2014	25 Jun 2015	07 Jul 2014
BH10-2	SE129158.002	LB060258	25 Jun 2014	30 Jun 2014	25 Jun 2015	04 Jul 2014	25 Jun 2015	07 Jul 2014
BH11-1	SE129158.003	LB060258	25 Jun 2014	30 Jun 2014	25 Jun 2015	04 Jul 2014	25 Jun 2015	07 Jul 2014
BH12-1	SE129158.004	LB060258	25 Jun 2014	30 Jun 2014	25 Jun 2015	04 Jul 2014	25 Jun 2015	07 Jul 2014
BH13-1	SE129158.005	LB060258	25 Jun 2014	30 Jun 2014	25 Jun 2015	04 Jul 2014	25 Jun 2015	07 Jul 2014
BH13-2	SE129158.006	LB060258	25 Jun 2014	30 Jun 2014	25 Jun 2015	04 Jul 2014	25 Jun 2015	07 Jul 2014

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH10-1	SE129158.001	LB060214	25 Jun 2014	30 Jun 2014	23 Jul 2014	04 Jul 2014	23 Jul 2014	07 Jul 2014
BH10-2	SE129158.002	LB060214	25 Jun 2014	30 Jun 2014	23 Jul 2014	04 Jul 2014	23 Jul 2014	07 Jul 2014
BH11-1	SE129158.003	LB060214	25 Jun 2014	30 Jun 2014	23 Jul 2014	04 Jul 2014	23 Jul 2014	07 Jul 2014
BH12-1	SE129158.004	LB060214	25 Jun 2014	30 Jun 2014	23 Jul 2014	04 Jul 2014	23 Jul 2014	07 Jul 2014
BH13-1	SE129158.005	LB060214	25 Jun 2014	30 Jun 2014	23 Jul 2014	04 Jul 2014	23 Jul 2014	07 Jul 2014
BH13-2	SE129158.006	LB060214	25 Jun 2014	30 Jun 2014	23 Jul 2014	04 Jul 2014	23 Jul 2014	07 Jul 2014

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH10-1	SE129158.001	LB060219	25 Jun 2014	30 Jun 2014	09 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH10-2	SE129158.002	LB060219	25 Jun 2014	30 Jun 2014	09 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH11-1	SE129158.003	LB060219	25 Jun 2014	30 Jun 2014	09 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH12-1	SE129158.004	LB060219	25 Jun 2014	30 Jun 2014	09 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH13-1	SE129158.005	LB060219	25 Jun 2014	30 Jun 2014	09 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH13-2	SE129158.006	LB060219	25 Jun 2014	30 Jun 2014	09 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH10-1	SE129158.001	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH10-2	SE129158.002	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH11-1	SE129158.003	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH12-1	SE129158.004	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH13-1	SE129158.005	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH13-2	SE129158.006	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
A1	SE129158.007	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH10-1	SE129158.001	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH10-2	SE129158.002	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH11-1	SE129158.003	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH12-1	SE129158.004	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH13-1	SE129158.005	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH13-2	SE129158.006	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
A1	SE129158.007	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH10-1	SE129158.001	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH10-2	SE129158.002	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH11-1	SE129158.003	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH12-1	SE129158.004	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH13-1	SE129158.005	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH13-2	SE129158.006	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
A1	SE129158.007	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref

HOLDING TIME SUMMARY

SE129158 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

PCBs in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH10-1	SE129158.001	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH10-2	SE129158.002	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH11-1	SE129158.003	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH12-1	SE129158.004	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH13-1	SE129158.005	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH13-2	SE129158.006	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
A1	SE129158.007	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH10-1	SE129158.001	LB060211	25 Jun 2014	30 Jun 2014	22 Dec 2014	04 Jul 2014	22 Dec 2014	07 Jul 2014
BH10-2	SE129158.002	LB060211	25 Jun 2014	30 Jun 2014	22 Dec 2014	04 Jul 2014	22 Dec 2014	07 Jul 2014
BH11-1	SE129158.003	LB060211	25 Jun 2014	30 Jun 2014	22 Dec 2014	04 Jul 2014	22 Dec 2014	07 Jul 2014
BH12-1	SE129158.004	LB060211	25 Jun 2014	30 Jun 2014	22 Dec 2014	04 Jul 2014	22 Dec 2014	07 Jul 2014
BH13-1	SE129158.005	LB060211	25 Jun 2014	30 Jun 2014	22 Dec 2014	04 Jul 2014	22 Dec 2014	07 Jul 2014
BH13-2	SE129158.006	LB060211	25 Jun 2014	30 Jun 2014	22 Dec 2014	04 Jul 2014	22 Dec 2014	07 Jul 2014

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH10-1	SE129158.001	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH10-2	SE129158.002	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH11-1	SE129158.003	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH12-1	SE129158.004	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH13-1	SE129158.005	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH13-2	SE129158.006	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
A1	SE129158.007	LB059990	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH10-1	SE129158.001	LB059953	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH10-2	SE129158.002	LB059953	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH11-1	SE129158.003	LB059953	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH12-1	SE129158.004	LB059953	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH13-1	SE129158.005	LB059953	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH13-2	SE129158.006	LB059953	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH10-1	SE129158.001	LB059953	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH10-2	SE129158.002	LB059953	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH11-1	SE129158.003	LB059953	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH12-1	SE129158.004	LB059953	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH13-1	SE129158.005	LB059953	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014
BH13-2	SE129158.006	LB059953	25 Jun 2014	30 Jun 2014	09 Jul 2014	01 Jul 2014	10 Aug 2014	07 Jul 2014

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	93
	BH10-2	SE129158.002	%	60 - 130%	115
	BH11-1	SE129158.003	%	60 - 130%	107
	BH12-1	SE129158.004	%	60 - 130%	98
	BH13-1	SE129158.005	%	60 - 130%	112
	BH13-2	SE129158.006	%	60 - 130%	106

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	86
	BH10-2	SE129158.002	%	60 - 130%	88
	BH11-1	SE129158.003	%	60 - 130%	90
	BH12-1	SE129158.004	%	60 - 130%	88
	BH13-1	SE129158.005	%	60 - 130%	92
	BH13-2	SE129158.006	%	60 - 130%	86
d14-p-terphenyl (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	100
	BH10-2	SE129158.002	%	60 - 130%	100
	BH11-1	SE129158.003	%	60 - 130%	102
	BH12-1	SE129158.004	%	60 - 130%	102
	BH13-1	SE129158.005	%	60 - 130%	104
	BH13-2	SE129158.006	%	60 - 130%	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	86
	BH10-2	SE129158.002	%	60 - 130%	88
	BH11-1	SE129158.003	%	60 - 130%	90
	BH12-1	SE129158.004	%	60 - 130%	88
	BH13-1	SE129158.005	%	60 - 130%	92
	BH13-2	SE129158.006	%	60 - 130%	86
d14-p-terphenyl (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	100
	BH10-2	SE129158.002	%	60 - 130%	100
	BH11-1	SE129158.003	%	60 - 130%	102
	BH12-1	SE129158.004	%	60 - 130%	102
	BH13-1	SE129158.005	%	60 - 130%	104
	BH13-2	SE129158.006	%	60 - 130%	98
d5-nitrobenzene (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	92
	BH10-2	SE129158.002	%	60 - 130%	92
	BH11-1	SE129158.003	%	60 - 130%	92
	BH12-1	SE129158.004	%	60 - 130%	98
	BH13-1	SE129158.005	%	60 - 130%	94
	BH13-2	SE129158.006	%	60 - 130%	92

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	93
	BH10-2	SE129158.002	%	60 - 130%	115
	BH11-1	SE129158.003	%	60 - 130%	107
	BH12-1	SE129158.004	%	60 - 130%	98
	BH13-1	SE129158.005	%	60 - 130%	112
	BH13-2	SE129158.006	%	60 - 130%	106

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	85
	BH10-2	SE129158.002	%	60 - 130%	71
	BH11-1	SE129158.003	%	60 - 130%	76
	BH12-1	SE129158.004	%	60 - 130%	77
	BH13-1	SE129158.005	%	60 - 130%	77
	BH13-2	SE129158.006	%	60 - 130%	71
d4-1,2-dichloroethane (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	75
	BH10-2	SE129158.002	%	60 - 130%	85
	BH11-1	SE129158.003	%	60 - 130%	95

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
d4-1,2-dichloroethane (Surrogate)	BH12-1	SE129158.004	%	60 - 130%	72
	BH13-1	SE129158.005	%	60 - 130%	103
	BH13-2	SE129158.006	%	60 - 130%	94
d8-toluene (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	121
	BH10-2	SE129158.002	%	60 - 130%	89
	BH11-1	SE129158.003	%	60 - 130%	99
	BH12-1	SE129158.004	%	60 - 130%	121
	BH13-1	SE129158.005	%	60 - 130%	102
	BH13-2	SE129158.006	%	60 - 130%	119
Dibromofluoromethane (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	74
	BH10-2	SE129158.002	%	60 - 130%	73
	BH11-1	SE129158.003	%	60 - 130%	71
	BH12-1	SE129158.004	%	60 - 130%	70
	BH13-1	SE129158.005	%	60 - 130%	79
	BH13-2	SE129158.006	%	60 - 130%	86

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	85
	BH10-2	SE129158.002	%	60 - 130%	71
	BH11-1	SE129158.003	%	60 - 130%	76
	BH12-1	SE129158.004	%	60 - 130%	77
	BH13-1	SE129158.005	%	60 - 130%	77
	BH13-2	SE129158.006	%	60 - 130%	71
d4-1,2-dichloroethane (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	75
	BH10-2	SE129158.002	%	60 - 130%	85
	BH11-1	SE129158.003	%	60 - 130%	95
	BH12-1	SE129158.004	%	60 - 130%	72
	BH13-1	SE129158.005	%	60 - 130%	103
	BH13-2	SE129158.006	%	60 - 130%	94
d8-toluene (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	121
	BH10-2	SE129158.002	%	60 - 130%	89
	BH11-1	SE129158.003	%	60 - 130%	99
	BH12-1	SE129158.004	%	60 - 130%	121
	BH13-1	SE129158.005	%	60 - 130%	102
	BH13-2	SE129158.006	%	60 - 130%	119
Dibromofluoromethane (Surrogate)	BH10-1	SE129158.001	%	60 - 130%	74
	BH10-2	SE129158.002	%	60 - 130%	73
	BH11-1	SE129158.003	%	60 - 130%	71
	BH12-1	SE129158.004	%	60 - 130%	70
	BH13-1	SE129158.005	%	60 - 130%	79
	BH13-2	SE129158.006	%	60 - 130%	86

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB060214.001	Mercury	mg/kg	0.01	<0.01

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB059990.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	101

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB059990.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	94
		d14-p-terphenyl (Surrogate)	%	-	100

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB059990.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB059990.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	102
		2-fluorobiphenyl (Surrogate)	%	-	94
		d14-p-terphenyl (Surrogate)	%	-	100

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB059990.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	101

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number		Parameter	Units	LOR	Result
LB060211.001		Arsenic, As	mg/kg	3	<3
		Cadmium, Cd	mg/kg	0.3	<0.3
		Chromium, Cr	mg/kg	0.3	<0.3
		Copper, Cu	mg/kg	0.5	<0.5
		Lead, Pb	mg/kg	1	<1
		Nickel, Ni	mg/kg	0.5	<0.5
		Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result
LB059990.001		TRH C10-C14	mg/kg	20	<20
		TRH C15-C28	mg/kg	45	<45
		TRH C29-C36	mg/kg	45	<45
		TRH C37-C40	mg/kg	100	<100
		TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB059953.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	80
		d4-1,2-dichloroethane (Surrogate)	%	-	107
		d8-toluene (Surrogate)	%	-	116
		Bromofluorobenzene (Surrogate)	%	-	78
	Totals	Total BTEX*	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result
LB059953.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	80
		d4-1,2-dichloroethane (Surrogate)	%	-	107
		d8-toluene (Surrogate)	%	-	116

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.004	LB060214.014	Mercury	mg/kg	0.01	0.015097270	10.0151192841	200	0
SE129226.001	LB060214.023	Mercury	mg/kg	0.01	0.000806706	70.0006705749	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129158.002	LB060219.011	% Moisture	%w/w	0.5	22	23	34	5
SE129159.006	LB060219.022	% Moisture	%	0.5	13.173652694	13.308687615	38	1
SE129163.001	LB060219.028	% Moisture	%	0.5	21.521035598	22.4381625441	35	4

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.005	LB059990.019		Hexachlorobenzene (HCB)	mg/kg	0.1	0	0	200	0
			Alpha BHC	mg/kg	0.1	0	0	200	0
			Lindane	mg/kg	0.1	0	0	200	0
			Heptachlor	mg/kg	0.1	0	0	200	0
			Aldrin	mg/kg	0.1	0	0	200	0
			Beta BHC	mg/kg	0.1	0	0	200	0
			Delta BHC	mg/kg	0.1	0	0	200	0
			Heptachlor epoxide	mg/kg	0.1	0	0	200	0
			o,p'-DDE	mg/kg	0.1	0	0	200	0
			Alpha Endosulfan	mg/kg	0.2	0	0	200	0
			Gamma Chlordane	mg/kg	0.1	0	0	200	0
			Alpha Chlordane	mg/kg	0.1	0	0	200	0
			trans-Nonachlor	mg/kg	0.1	0	0	200	0
			p,p'-DDE	mg/kg	0.1	0	0	200	0
			Dieldrin	mg/kg	0.2	0	0	200	0
			Endrin	mg/kg	0.2	0	0	200	0
			o,p'-DDD	mg/kg	0.1	0	0	200	0
			o,p'-DDT	mg/kg	0.1	0	0	200	0
			Beta Endosulfan	mg/kg	0.2	0	0	200	0
			p,p'-DDD	mg/kg	0.1	0	0	200	0
			p,p'-DDT	mg/kg	0.1	0	0	200	0
			Endosulfan sulphate	mg/kg	0.1	0	0	200	0
			Endrin Aldehyde	mg/kg	0.1	0	0	200	0
			Methoxychlor	mg/kg	0.1	0	0	200	0
			Endrin Ketone	mg/kg	0.1	0	0	200	0
			Isodrin	mg/kg	0.1	0	0	200	0
			Mirex	mg/kg	0.1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.171	0.168	30	2
SE129159.009	LB059990.024		Hexachlorobenzene (HCB)	mg/kg	0.1	0	0	200	0
			Alpha BHC	mg/kg	0.1	0	0	200	0
			Lindane	mg/kg	0.1	0	0	200	0
			Heptachlor	mg/kg	0.1	0	0	200	0
			Aldrin	mg/kg	0.1	0	0	200	0
			Beta BHC	mg/kg	0.1	0	0	200	0
			Delta BHC	mg/kg	0.1	0	0	200	0
			Heptachlor epoxide	mg/kg	0.1	0	0	200	0
			o,p'-DDE	mg/kg	0.1	0	0	200	0
			Alpha Endosulfan	mg/kg	0.2	0	0	200	0
			Gamma Chlordane	mg/kg	0.1	0	0	200	0
			Alpha Chlordane	mg/kg	0.1	0	0	200	0
			trans-Nonachlor	mg/kg	0.1	0	0	200	0
			p,p'-DDE	mg/kg	0.1	0	0	200	0
			Dieldrin	mg/kg	0.2	0	0	200	0
			Endrin	mg/kg	0.2	0	0	200	0
			o,p'-DDD	mg/kg	0.1	0	0	200	0
			o,p'-DDT	mg/kg	0.1	0	0	200	0
			Beta Endosulfan	mg/kg	0.2	0	0	200	0
			p,p'-DDD	mg/kg	0.1	0	0	200	0
			p,p'-DDT	mg/kg	0.1	0	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil (continued)

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.009	LB059990.024		Endosulfan sulphate	mg/kg	0.1	0	0	200	0
			Endrin Aldehyde	mg/kg	0.1	0	0	200	0
			Methoxychlor	mg/kg	0.1	0	0	200	0
			Endrin Ketone	mg/kg	0.1	0	0	200	0
			Isodrin	mg/kg	0.1	0	0	200	0
			Mirex	mg/kg	0.1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.185	0.182	30	2

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.005	LB059990.019		Dichlorvos	mg/kg	0.5	0	0	200	0
			Dimethoate	mg/kg	0.5	0	0	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	0	0	200	0
			Fenitrothion	mg/kg	0.2	0	0	200	0
			Malathion	mg/kg	0.2	0	0	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	0	0	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	0	0	200	0
			Bromophos Ethyl	mg/kg	0.2	0	0	200	0
			Methidathion	mg/kg	0.5	0	0	200	0
			Ethion	mg/kg	0.2	0	0	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	0	0	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.45	0.46	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.53	0.53	30	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.005	LB059990.019		Naphthalene	mg/kg	0.1	0	0	200	0
			2-methylnaphthalene	mg/kg	0.1	0	0	200	0
			1-methylnaphthalene	mg/kg	0.1	0	0	200	0
			Acenaphthylene	mg/kg	0.1	0	0	200	0
			Acenaphthene	mg/kg	0.1	0	0	200	0
			Fluorene	mg/kg	0.1	0	0	200	0
			Phenanthrene	mg/kg	0.1	0	0	200	0
			Anthracene	mg/kg	0.1	0	0	200	0
			Fluoranthene	mg/kg	0.1	0	0	200	0
			Pyrene	mg/kg	0.1	0	0	200	0
			Benzo(a)anthracene	mg/kg	0.1	0	0	200	0
			Chrysene	mg/kg	0.1	0	0	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	0	0	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	0	0	200	0
			Benzo(a)pyrene	mg/kg	0.1	0	0	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	0	0	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	0	0	200	0
			Benzo(ghi)perylene	mg/kg	0.1	0	0	200	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	0	0	200	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	0.242	0.242	134	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	0.121	0.121	175	0
			Total PAH	mg/kg	0.8	0	0	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.49	0.48	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.45	0.46	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.53	0.53	30	0
SE129163.001	LB059990.027		Naphthalene	mg/kg	0.1	0.13	0.16	99	21
			2-methylnaphthalene	mg/kg	0.1	0.09	0.06	163	0
			1-methylnaphthalene	mg/kg	0.1	0.13	0.06	135	26
			Acenaphthylene	mg/kg	0.1	1.02	0.36	44	96 ②
			Acenaphthene	mg/kg	0.1	0.11	0.05	155	10
			Fluorene	mg/kg	0.1	0.61	0.2	55	101 ②
			Phenanthrene	mg/kg	0.1	5.68	2.66	32	72 ②
			Anthracene	mg/kg	0.1	1.31	0.58	41	77 ②
			Fluoranthene	mg/kg	0.1	6.84	3.73	32	59 ②
			Pyrene	mg/kg	0.1	6.34	3.6	32	55 ②
			Benzo(a)anthracene	mg/kg	0.1	3.87	2.5	33	43 ②

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129163.001	LB059990.027		Chrysene	mg/kg	0.1	2.68	2.15	34	22
			Benzo(b&j)fluoranthene	mg/kg	0.1	4.17	3.36	33	22
			Benzo(k)fluoranthene	mg/kg	0.1	1.21	1.45	38	18
			Benzo(a)pyrene	mg/kg	0.1	3.04	2.7	33	12
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	2.13	1.83	35	15
			Dibenzo(a&h)anthracene	mg/kg	0.1	0.2	0.2	80	0
			Benzo(ghi)perylene	mg/kg	0.1	1.59	1.37	37	15
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	4.3607	3.8072	15	14
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	4.3607	3.8072	17	14
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	4.3607	3.8072	15	14
			Total PAH	mg/kg	0.8	41.15	27.02	32	41 ②
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.47	0.56	30	17
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.47	0.5	30	6
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.49	0.5	30	2

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.005	LB059990.019		Arochlor 1016	mg/kg	0.2	0	0	200	0
			Arochlor 1221	mg/kg	0.2	0	0	200	0
			Arochlor 1232	mg/kg	0.2	0	0	200	0
			Arochlor 1242	mg/kg	0.2	0	0	200	0
			Arochlor 1248	mg/kg	0.2	0	0	200	0
			Arochlor 1254	mg/kg	0.2	0	0	200	0
			Arochlor 1260	mg/kg	0.2	0	0	200	0
			Arochlor 1262	mg/kg	0.2	0	0	200	0
			Arochlor 1268	mg/kg	0.2	0	0	200	0
			Total PCBs (Arochlors)	mg/kg	1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.171	0.168	30	2
SE129159.009	LB059990.024		Arochlor 1016	mg/kg	0.2	0	0	200	0
			Arochlor 1221	mg/kg	0.2	0	0	200	0
			Arochlor 1232	mg/kg	0.2	0	0	200	0
			Arochlor 1242	mg/kg	0.2	0	0	200	0
			Arochlor 1248	mg/kg	0.2	0	0	200	0
			Arochlor 1254	mg/kg	0.2	0	0	200	0
			Arochlor 1260	mg/kg	0.2	0	0	200	0
			Arochlor 1262	mg/kg	0.2	0	0	200	0
			Arochlor 1268	mg/kg	0.2	0	0	200	0
			Total PCBs (Arochlors)	mg/kg	1	0	0	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.185	0.182	30	2

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.004	LB060211.014	Arsenic, As	mg/kg	3	8.54363584029.9436752936		41	15
		Cadmium, Cd	mg/kg	0.3	0.27910631570.2362106429		146	0
		Chromium, Cr	mg/kg	0.3	15.468015648716.2285371671		33	5
		Copper, Cu	mg/kg	0.5	12.59196236984.0728466629		34	11
		Lead, Pb	mg/kg	1	22.832697113024.209148797(		34	6
		Nickel, Ni	mg/kg	0.5	3.15234109223.1360039501		46	1
		Zinc, Zn	mg/kg	0.5	37.329152928232.4936515672		35	13
SE129226.001	LB060211.024	Arsenic, As	mg/kg	3	3.27521551722.7362338362		63	18
		Cadmium, Cd	mg/kg	0.3	0.58591056030.6899542025		77	16
		Chromium, Cr	mg/kg	0.3	10.115813577(0.7417564655		35	6
		Copper, Cu	mg/kg	0.5	31.133620689(3.3763469827		32	7
		Lead, Pb	mg/kg	1	9.27357219829.9043642241		40	7
		Nickel, Ni	mg/kg	0.5	36.687499999(8.8973599137		31	6
		Zinc, Zn	mg/kg	0.5	50.884159482(3.0775862066		34	4

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.005	LB059990.018	TRH C10-C14	mg/kg	20	0	0	200	0
		TRH C15-C28	mg/kg	45	0	0	200	0
		TRH C29-C36	mg/kg	45	0	0	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.005	LB059990.018		TRH C37-C40	mg/kg	100	0	0	200	0
			TRH C10-C36 Total	mg/kg	110	0	0	200	0
			TRH C10-C40 Total	mg/kg	210	0	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	0	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	0	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	0	0	200	0
SE129159.009	LB059990.023		TRH C10-C14	mg/kg	20	0	0	200	0
			TRH C15-C28	mg/kg	45	0	0	200	0
			TRH C29-C36	mg/kg	45	0	0	200	0
			TRH C37-C40	mg/kg	100	0	0	200	0
			TRH C10-C36 Total	mg/kg	110	0	0	200	0
			TRH C10-C40 Total	mg/kg	210	0	0	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	0	0	200	0
			TRH >C16-C34 (F3)	mg/kg	90	0	0	200	0
			TRH >C34-C40 (F4)	mg/kg	120	0	0	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.004	LB059953.014	Monocyclic	Benzene	mg/kg	0.1	0	0	200	0
		Aromatic	Toluene	mg/kg	0.1	0	0	200	0
			Ethylbenzene	mg/kg	0.1	0	0	200	0
			m/p-xylene	mg/kg	0.2	0	0	200	0
			o-xylene	mg/kg	0.1	0	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.43	4.14	50	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.44	5.68	50	25
			d8-toluene (Surrogate)	mg/kg	-	6.15	5.77	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.66	3.66	50	0
		Totals	Total Xylenes*	mg/kg	0.3	0	0	200	0
			Total BTEX*	mg/kg	0.6	0	0	200	0
SE129163.001	LB059953.022	Monocyclic	Benzene	mg/kg	0.1	0	0	200	0
		Aromatic	Toluene	mg/kg	0.1	0	0	200	0
			Ethylbenzene	mg/kg	0.1	0	0	200	0
			m/p-xylene	mg/kg	0.2	0	0	200	0
			o-xylene	mg/kg	0.1	0	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.27	4.29	50	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.43	3.9	50	33
			d8-toluene (Surrogate)	mg/kg	-	5.12	4.82	50	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.58	3.93	50	9
		Totals	Total Xylenes*	mg/kg	0.3	0	0	200	0
			Total BTEX*	mg/kg	0.6	0	0	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.004	LB059953.014		TRH C6-C10	mg/kg	25	0	0	200	0
			TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.43	4.14	30	7
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.44	5.68	30	25
			d8-toluene (Surrogate)	mg/kg	-	6.15	5.77	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.66	3.66	30	0
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0	0	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	0	0	200	0
SE129163.001	LB059953.022		TRH C6-C10	mg/kg	25	0	0	200	0
			TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.27	4.29	30	0
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.43	3.9	30	33 †
			d8-toluene (Surrogate)	mg/kg	-	5.12	4.82	30	6
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.58	3.93	30	9
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0	0	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	0	0	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060214.002	Mercury	mg/kg	0.01	0.21	0.2	70 - 130	103

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059990.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	75
		Aldrin	mg/kg	0.1	0.2	0.2	60 - 140	75
		Delta BHC	mg/kg	0.1	0.2	0.2	60 - 140	75
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	70
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	75
		p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	65
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.17	0.15	40 - 130	113

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059990.002		Dichlorvos	mg/kg	0.5	1.8	2	60 - 140	92
		Diazinon (Dimpylate)	mg/kg	0.5	1.7	2	60 - 140	87
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.6	2	60 - 140	82
		Ethion	mg/kg	0.2	1.4	2	60 - 140	70
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059990.002		Naphthalene	mg/kg	0.1	4.2	4	60 - 140	105
		Acenaphthylene	mg/kg	0.1	4.2	4	60 - 140	106
		Acenaphthene	mg/kg	0.1	4.9	4	60 - 140	123
		Phenanthrene	mg/kg	0.1	4.1	4	60 - 140	103
		Anthracene	mg/kg	0.1	3.9	4	60 - 140	98
		Fluoranthene	mg/kg	0.1	4.0	4	60 - 140	100
		Pyrene	mg/kg	0.1	3.4	4	60 - 140	85
		Benzo(a)pyrene	mg/kg	0.1	4.3	4	60 - 140	109
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059990.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	124

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060211.002	Arsenic, As	mg/kg	3	52	50	80 - 120	104
	Cadmium, Cd	mg/kg	0.3	52	50	80 - 120	103
	Chromium, Cr	mg/kg	0.3	52	50	80 - 120	103
	Copper, Cu	mg/kg	0.5	52	50	80 - 120	103
	Lead, Pb	mg/kg	1	51	50	80 - 120	102
	Nickel, Ni	mg/kg	0.5	53	50	80 - 120	105
	Zinc, Zn	mg/kg	0.5	52	50	80 - 120	104

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059990.002		TRH C10-C14	mg/kg	20	36	40	60 - 140	90
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	88
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	88
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	36	40	60 - 140	90
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	83
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	95

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059953.002	Monocyclic	Benzene	mg/kg	0.1	3.1	2.9	60 - 140	107
	Aromatic	Toluene	mg/kg	0.1	3.9	2.9	60 - 140	135
		Ethylbenzene	mg/kg	0.1	3.4	2.9	60 - 140	118
		m/p-xylene	mg/kg	0.2	5.2	5.8	60 - 140	89
		o-xylene	mg/kg	0.1	3.5	2.9	60 - 140	119
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	5	60 - 140	77
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	5	60 - 140	79
		d8-toluene (Surrogate)	mg/kg	-	5.6	5	60 - 140	111
		Bromofluorobenzene (Surrogate)	mg/kg	-	3.6	5	60 - 140	71

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB059953.002		TRH C6-C10	mg/kg	25	28	24.65	60 - 140	113
		TRH C6-C9	mg/kg	20	24	23.2	60 - 140	104
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.8	5	60 - 140	77
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	5	60 - 140	79
		d8-toluene (Surrogate)	mg/kg	-	5.6	5	60 - 140	111
		Bromofluorobenzene (Surrogate)	mg/kg	-	3.6	5	60 - 140	71
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	121

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub -sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.001	LB060214.004	Mercury	mg/kg	0.01	0.20	<0.01	0.2	100

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129159.001	LB059990.012		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	0	-	-
			Alpha BHC	mg/kg	0.1	<0.1	0	-	-
			Lindane	mg/kg	0.1	<0.1	0	-	-
			Heptachlor	mg/kg	0.1	0.2	0	0.2	120
			Aldrin	mg/kg	0.1	0.3	0	0.2	125
			Beta BHC	mg/kg	0.1	<0.1	0	-	-
			Delta BHC	mg/kg	0.1	0.2	0	0.2	115
			Heptachlor epoxide	mg/kg	0.1	<0.1	0	-	-
			o,p'-DDE	mg/kg	0.1	<0.1	0	-	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	0	-	-
			Gamma Chlordane	mg/kg	0.1	<0.1	0	-	-
			Alpha Chlordane	mg/kg	0.1	<0.1	0	-	-
			trans-Nonachlor	mg/kg	0.1	<0.1	0	-	-
			p,p'-DDE	mg/kg	0.1	<0.1	0	-	-
			Dieldrin	mg/kg	0.2	0.2	0	0.2	115
			Endrin	mg/kg	0.2	0.2	0	0.2	120
			o,p'-DDD	mg/kg	0.1	<0.1	0	-	-
			o,p'-DDT	mg/kg	0.1	<0.1	0	-	-
			Beta Endosulfan	mg/kg	0.2	<0.2	0	-	-
			p,p'-DDD	mg/kg	0.1	<0.1	0	-	-
			p,p'-DDT	mg/kg	0.1	0.2	0	0.2	110
			Endosulfan sulphate	mg/kg	0.1	<0.1	0	-	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	0	-	-
			Methoxychlor	mg/kg	0.1	<0.1	0	-	-
			Endrin Ketone	mg/kg	0.1	<0.1	0	-	-
			Isodrin	mg/kg	0.1	<0.1	0	-	-
			Mirex	mg/kg	0.1	<0.1	0	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.171	-	90

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.004	LB059990.008		Dichlorvos	mg/kg	0.5	1.7	<0.5	2	87
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.6	<0.5	2	79
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.4	<0.2	2	71
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	1.4	<0.2	2	72
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	0.5	92
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	0.5	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.004	LB059990.008	Naphthalene	mg/kg	0.1	4.2	<0.1	4	104
		2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Acenaphthylene	mg/kg	0.1	4.2	<0.1	4	106
		Acenaphthene	mg/kg	0.1	4.6	<0.1	4	114
		Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
		Phenanthrene	mg/kg	0.1	4.1	<0.1	4	103
		Anthracene	mg/kg	0.1	3.8	<0.1	4	95
		Fluoranthene	mg/kg	0.1	4.2	<0.1	4	104

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub -sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.004	LB059990.008		Pyrene	mg/kg	0.1	3.2	<0.1	4	81
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	4.5	<0.1	4	113
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ	0.2	4.5	<0.2	-	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	4.7	<0.3	-	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	4.6	<0.2	-	-
			Total PAH	mg/kg	0.8	33	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	90
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	-	92
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	98

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.004	LB059990.008		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1260	mg/kg	0.2	0.4	<0.2	0.4	97
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	-	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	-	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	-	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	-	97

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.001	LB060211.004	Arsenic, As	mg/kg	3	56	<3	50	107
		Cadmium, Cd	mg/kg	0.3	53	<0.3	50	106
		Chromium, Cr	mg/kg	0.3	54	1.4	50	106
		Copper, Cu	mg/kg	0.5	54	0.6	50	107
		Lead, Pb	mg/kg	1	54	1	50	106
		Nickel, Ni	mg/kg	0.5	55	0.6	50	109
		Zinc, Zn	mg/kg	0.5	57	3.5	50	107

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.001	LB059953.004	Monocyclic	Benzene	mg/kg	0.1	2.1	<0.1	2.9	73
		Aromatic	Toluene	mg/kg	0.1	2.7	<0.1	2.9	94
			Ethylbenzene	mg/kg	0.1	2.8	<0.1	2.9	97
			m/p-xylene	mg/kg	0.2	5.4	<0.2	5.8	94
			o-xylene	mg/kg	0.1	2.5	<0.1	2.9	86
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.7	5	83
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	3.7	5	89
			d8-toluene (Surrogate)	mg/kg	-	4.7	6.1	5	95
			Bromofluorobenzene (Surrogate)	mg/kg	-	5.5	4.3	5	110
		Totals	Total Xylenes*	mg/kg	0.3	7.9	<0.3	-	-
			Total BTEX*	mg/kg	0.6	16	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.001	LB059953.004		TRH C6-C10	mg/kg	25	25	<25	24.65	102
			TRH C6-C9	mg/kg	20	23	<20	23.2	97
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	3.7	5	83
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.5	3.7	5	89
			d8-toluene (Surrogate)	mg/kg	-	4.7	6.1	5	95

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub -sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433/AN434/AN410**

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129158.001	LB059953.004	Surrogates	Bromofluorobenzene (Surrogate)	mg/kg	-	5.5	4.3	5	110
		VPH F	Benzene (F0)	mg/kg	0.1	2.1	<0.1	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	7.25	133

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129159.001	LB059990.013		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	-
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	-
			Lindane	mg/kg	0.1	<0.1	<0.1	200	-
			Heptachlor	mg/kg	0.1	0.2	0.3	70	8
			Aldrin	mg/kg	0.1	0.3	0.3	69	4
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	-
			Delta BHC	mg/kg	0.1	0.2	0.3	72	8
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	-
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	-
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	-
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	-
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	-
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	-
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	-
			Dieldrin	mg/kg	0.2	0.2	0.3	72	8
			Endrin	mg/kg	0.2	0.2	0.3	70	8
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	-
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	-
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	-
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	-
			p,p'-DDT	mg/kg	0.1	0.2	0.2	73	9
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	-
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	-
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	-
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	-
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	-
			Mirex	mg/kg	0.1	<0.1	<0.1	200	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.14	0.14	30	2

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129158.004	LB059990.009		Dichlorvos	mg/kg	0.5	1.7	1.8	58	4
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.6	1.7	60	10
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	-
			Malathion	mg/kg	0.2	<0.2	<0.2	200	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.4	1.5	169	3
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	-
			Ethion	mg/kg	0.2	1.4	1.5	44	1
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number	Parameter	Units	LOR

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129158.004	LB059990.009		Naphthalene	mg/kg	0.1	4.2	4.4	32	6
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	-
			Acenaphthylene	mg/kg	0.1	4.2	4.6	32	9
			Acenaphthene	mg/kg	0.1	4.6	5.0	32	10
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	-
			Phenanthrene	mg/kg	0.1	4.1	4.2	32	2
			Anthracene	mg/kg	0.1	3.8	4.0	33	5
			Fluoranthene	mg/kg	0.1	4.2	4.2	32	1
			Pyrene	mg/kg	0.1	3.2	3.8	33	17
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	-
			Benzo(a)pyrene	mg/kg	0.1	4.5	4.6	32	1
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	-
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ	0.2	4.5	4.6	14	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	4.7	4.7	16	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	4.6	4.6	14	-
			Total PAH	mg/kg	0.8	33	35	32	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	6

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129158.004	LB059990.009		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	-
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	-
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	-
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	-
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	-
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	-
			Arochlor 1260	mg/kg	0.2	0.4	0.4	83	4
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	-
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	-
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	-
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	1

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Duplicate
SE129158.001	LB059990.005		TRH C10-C14	mg/kg	20	36
			TRH C15-C28	mg/kg	45	<45
			TRH C29-C36	mg/kg	45	<45
			TRH C37-C40	mg/kg	100	<100
			TRH C10-C36 Total	mg/kg	110	<110
			TRH C10-C40 Total	mg/kg	210	<210
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	36
			TRH >C16-C34 (F3)	mg/kg	90	<90
			TRH >C34-C40 (F4)	mg/kg	120	<120

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

*	Non-accredited analysis.
-	Sample not analysed for this analyte.
^	Analysis performed by external laboratory.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

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ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

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Project	**E22232 - 165 Milton St - Ashbury-Batch 2**
Order Number	**E22232**
Samples	7

LABORATORY DETAILS

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SGS Reference	SE129158 R0
Report Number	0000086485
Date Reported	07 Jul 2014
Date Received	30 Jun 2014

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

Sample # 7 : ashed after initial stereo microscope examination, re-examined and trace analysis performed on samples where asbestos has not been detected.
No trace asbestos fibres detected using trace analysis technique.
Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Asbestos Analyst

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w
SE129158.001	BH10-1	Soil	14 g Clay,sand	25 Jun 2014	No Asbestos Found	< 0.01
SE129158.002	BH10-2	Soil	35 g Clay	25 Jun 2014	No Asbestos Found	< 0.01
SE129158.003	BH11-1	Soil	34 g Clay,sand,rocks	25 Jun 2014	No Asbestos Found	< 0.01
SE129158.004	BH12-1	Soil	35 g Clay,sand	25 Jun 2014	No Asbestos Found	< 0.01
SE129158.005	BH13-1	Soil	41 g Clay,sand	25 Jun 2014	No Asbestos Found	< 0.01
SE129158.006	BH13-2	Soil	25 g Clay	25 Jun 2014	No Asbestos Found	< 0.01

ANALYTICAL REPORT

RESULTS

Fibre ID in bulk materials — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w
SE129158.007	A1	Other	35x25x3mm Cement sheet fragment	25 Jun 2014	No Asbestos Detected	

METHOD SUMMARY

SE129158 R0

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	Not Accredited
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarized light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarized light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarized light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au.pv.sgsv3/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS		LABORATORY DETAILS	
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Project	**E22232 - Milton St - Ashbury**	SGS Reference	**SE129214 R0**
Order Number	**E22232**	Report Number	0000086556
Samples	6	Date Reported	08 Jul 2014
		Date Received	01 Jul 2014

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all samples using trace analysis technique.
Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

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Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

Huong Crawford
Production Manager

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Asbestos Analyst

Parameter	Units	LOR	Sample Number: SE129214.001 Sample Matrix: Soil Sample Date: 27/6/14 9:00 Sample Name: BH1-2	SE129214.002 Soil 27/6/14 9:00 BH1-3	SE129214.003 Soil 27/6/14 9:00 BH1-7	SE129214.004 Soil 26/6/14 8:00 BH5-ASB_ZLB
VOC's in Soil Method: AN433/AN434						
Monocyclic Aromatic Hydrocarbons						
Benzene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Toluene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Ethylbenzene	mg/kg	0.1	<0.1	<0.1	<0.1	-
m/p-xylene	mg/kg	0.2	<0.2	<0.2	<0.2	-
o-xylene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Polycyclic VOCs						
Naphthalene	mg/kg	0.1	<0.1	<0.1	<0.1	-
Surrogates						
Dibromofluoromethane (Surrogate)	%	-	**72**	**88**	**79**	-
d4-1,2-dichloroethane (Surrogate)	%	-	**71**	**96**	**75**	-
d8-toluene (Surrogate)	%	-	**109**	**130**	**91**	-
Bromofluorobenzene (Surrogate)	%	-	**72**	**75**	**73**	-
Totals						
Total Xylenes*	mg/kg	0.3	<0.3	<0.3	<0.3	-
Total BTEX*	mg/kg	0.6	<0.6	<0.6	<0.6	-
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410						
TRH C6-C10	mg/kg	25	<25	<25	<25	-
TRH C6-C9	mg/kg	20	<20	<20	<20	-
Surrogates						
Dibromofluoromethane (Surrogate)	%	-	**72**	**88**	**79**	-
d4-1,2-dichloroethane (Surrogate)	%	-	**71**	**96**	**75**	-
d8-toluene (Surrogate)	%	-	**109**	**130**	**91**	-
Bromofluorobenzene (Surrogate)	%	-	**72**	**75**	**73**	-

Parameter	Units	LOR	Sample Number: SE129214.001 Sample Matrix: Soil Sample Date: 27/6/14 9:00 Sample Name: BH1-2	SE129214.002 Soil 27/6/14 9:00 BH1-3	SE129214.003 Soil 27/6/14 9:00 BH1-7	SE129214.004 Soil 26/6/14 8:00 BH5-ASB_ZLB
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410 (continued)						
VPH F Bands						
Benzene (F0)	mg/kg	0.1	<0.1	<0.1	<0.1	-
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	<25	-
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403						
TRH C10-C14	mg/kg	20	<20	<20	<20	-
TRH C15-C28	mg/kg	45	<45	<45	<45	-
TRH C29-C36	mg/kg	45	<45	<45	<45	-
TRH C37-C40	mg/kg	100	<100	<100	<100	-
TRH C10-C36 Total	mg/kg	110	<110	<110	<110	-
TRH C10-C40 Total	mg/kg	210	<210	<210	<210	-
TRH F Bands						
TRH >C10-C16 (F2)	mg/kg	25	<25	<25	<25	-
TRH >C16-C34 (F3)	mg/kg	90	<90	<90	<90	-
TRH >C34-C40 (F4)	mg/kg	120	<120	<120	<120	-
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420						
Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
Acenaphthylene	mg/kg	0.1	<0.1	<0.1	-	-
Acenaphthene	mg/kg	0.1	<0.1	<0.1	-	-
Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
Phenanthrene	mg/kg	0.1	<0.1	<0.1	-	-
Anthracene	mg/kg	0.1	<0.1	<0.1	-	-
Fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
Pyrene	mg/kg	0.1	<0.1	<0.1	-	-
Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2	<0.2	<0.2	-	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3	-	-
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	<0.2	-	-
Total PAH	mg/kg	0.8	<0.8	<0.8	-	-
Surrogates						
d5-nitrobenzene (Surrogate)	%	-	**98**	**94**	-	-
2-fluorobiphenyl (Surrogate)	%	-	**96**	**90**	-	-
d14-p-terphenyl (Surrogate)	%	-	**102**	**98**	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE129214.001 Soil 27/6/14 9:00 BH1-2	SE129214.002 Soil 27/6/14 9:00 BH1-3	SE129214.003 Soil 27/6/14 9:00 BH1-7	SE129214.004 Soil 26/6/14 8:00 BH5-ASB_ZLB
OC Pesticides in Soil Method: AN400/AN420							
Hexachlorobenzene (HCB)	mg/kg	0.1		<0.1	<0.1	-	-
Alpha BHC	mg/kg	0.1		<0.1	<0.1	-	-
Lindane	mg/kg	0.1		<0.1	<0.1	-	-
Heptachlor	mg/kg	0.1		<0.1	<0.1	-	-
Aldrin	mg/kg	0.1		<0.1	<0.1	-	-
Beta BHC	mg/kg	0.1		<0.1	<0.1	-	-
Delta BHC	mg/kg	0.1		<0.1	<0.1	-	-
Heptachlor epoxide	mg/kg	0.1		<0.1	<0.1	-	-
o,p'-DDE	mg/kg	0.1		<0.1	<0.1	-	-
Alpha Endosulfan	mg/kg	0.2		<0.2	<0.2	-	-
Gamma Chlordane	mg/kg	0.1		<0.1	<0.1	-	-
Alpha Chlordane	mg/kg	0.1		<0.1	<0.1	-	-
trans-Nonachlor	mg/kg	0.1		<0.1	<0.1	-	-
p,p'-DDE	mg/kg	0.1		<0.1	<0.1	-	-
Dieldrin	mg/kg	0.2		<0.2	<0.2	-	-
Endrin	mg/kg	0.2		<0.2	<0.2	-	-
o,p'-DDD	mg/kg	0.1		<0.1	<0.1	-	-
o,p'-DDT	mg/kg	0.1		<0.1	<0.1	-	-
Beta Endosulfan	mg/kg	0.2		<0.2	<0.2	-	-
p,p'-DDD	mg/kg	0.1		<0.1	<0.1	-	-
p,p'-DDT	mg/kg	0.1		<0.1	<0.1	-	-
Endosulfan sulphate	mg/kg	0.1		<0.1	<0.1	-	-
Endrin Aldehyde	mg/kg	0.1		<0.1	<0.1	-	-
Methoxychlor	mg/kg	0.1		<0.1	<0.1	-	-
Endrin Ketone	mg/kg	0.1		<0.1	<0.1	-	-
Isodrin	mg/kg	0.1		<0.1	<0.1	-	-
Mirex	mg/kg	0.1		<0.1	<0.1	-	-
Surrogates							
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-		**109**	**107**	-	-
OP Pesticides in Soil Method: AN400/AN420							
Dichlorvos	mg/kg	0.5		<0.5	<0.5	-	-
Dimethoate	mg/kg	0.5		<0.5	<0.5	-	-
Diazinon (Dimpylate)	mg/kg	0.5		<0.5	<0.5	-	-
Fenitrothion	mg/kg	0.2		<0.2	<0.2	-	-
Malathion	mg/kg	0.2		<0.2	<0.2	-	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2		<0.2	<0.2	-	-
Parathion-ethyl (Parathion)	mg/kg	0.2		<0.2	<0.2	-	-
Bromophos Ethyl	mg/kg	0.2		<0.2	<0.2	-	-
Methidathion	mg/kg	0.5		<0.5	<0.5	-	-
Ethion	mg/kg	0.2		<0.2	<0.2	-	-
Azinphos-methyl (Guthion)	mg/kg	0.2		<0.2	<0.2	-	-
Surrogates							
2-fluorobiphenyl (Surrogate)	%	-		**96**	**90**	-	-
d14-p-terphenyl (Surrogate)	%	-		**102**	**98**	-	-

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE129214.001 Soil 27/6/14 9:00 BH1-2	SE129214.002 Soil 27/6/14 9:00 BH1-3	SE129214.003 Soil 27/6/14 9:00 BH1-7	SE129214.004 Soil 26/6/14 8:00 BH5-ASB_ZLB
PCBs in Soil Method: AN400/AN420							
Arochlor 1016	mg/kg	0.2		<0.2	<0.2	-	-
Arochlor 1221	mg/kg	0.2		<0.2	<0.2	-	-
Arochlor 1232	mg/kg	0.2		<0.2	<0.2	-	-
Arochlor 1242	mg/kg	0.2		<0.2	<0.2	-	-
Arochlor 1248	mg/kg	0.2		<0.2	<0.2	-	-
Arochlor 1254	mg/kg	0.2		<0.2	<0.2	-	-
Arochlor 1260	mg/kg	0.2		<0.2	<0.2	-	-
Arochlor 1262	mg/kg	0.2		<0.2	<0.2	-	-
Arochlor 1268	mg/kg	0.2		<0.2	<0.2	-	-
Total PCBs (Arochlors)	mg/kg	1		<1	<1	-	-
Surrogates							
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-		**109**	**107**	-	-
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320							
Arsenic, As	mg/kg	3		**13**	**5**	-	-
Cadmium, Cd	mg/kg	0.3		<0.3	<0.3	-	-
Chromium, Cr	mg/kg	0.3		**3.9**	**4.6**	-	-
Copper, Cu	mg/kg	0.5		**4.9**	**11**	-	-
Lead, Pb	mg/kg	1		**9**	**6**	-	-
Nickel, Ni	mg/kg	0.5		**1.7**	**1.0**	-	-
Zinc, Zn	mg/kg	0.5		**7.5**	**8.2**	-	-
Mercury in Soil Method: AN312							
Mercury	mg/kg	0.01		<0.01	<0.01	-	-
Fibre Identification in soil Method: AN602							
FibreID							
Asbestos Detected	No unit	-		-	-	-	No
SemiQuant							
Estimated Fibres	%w/w	0.01		-	-	-	<0.01
Moisture Content Method: AN002							
% Moisture	%	0.5		**3.0**	**8.8**	**12**	-

Parameter	Units	LOR	Sample Number: SE129214.005 Sample Matrix: Soil Sample Date: 26/6/14 8:00 Sample Name: BH5-1	Sample Number: SE129214.006 Sample Matrix: Soil Sample Date: 26/6/14 8:00 Sample Name: BH5-2
VOC's in Soil Method: AN433/AN434				
Monocyclic Aromatic Hydrocarbons				
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
o-xylene	mg/kg	0.1	<0.1	<0.1
Polycyclic VOCs				
Naphthalene	mg/kg	0.1	<0.1	<0.1
Surrogates				
Dibromofluoromethane (Surrogate)	%	-	**86**	**72**
d4-1,2-dichloroethane (Surrogate)	%	-	**99**	**73**
d8-toluene (Surrogate)	%	-	**109**	**108**
Bromofluorobenzene (Surrogate)	%	-	**78**	**72**
Totals				
Total Xylenes*	mg/kg	0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410				
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20
Surrogates				
Dibromofluoromethane (Surrogate)	%	-	**86**	**72**
d4-1,2-dichloroethane (Surrogate)	%	-	**99**	**73**
d8-toluene (Surrogate)	%	-	**109**	**108**
Bromofluorobenzene (Surrogate)	%	-	**78**	**72**

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE129214.005 Soil 26/6/14 8:00 BH5-1	SE129214.006 Soil 26/6/14 8:00 BH5-2
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410 (continued)					
VPH F Bands					
Benzene (F0)	mg/kg	0.1		<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25		<25	<25
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403					
TRH C10-C14	mg/kg	20		<20	<20
TRH C15-C28	mg/kg	45		<45	<45
TRH C29-C36	mg/kg	45		<45	<45
TRH C37-C40	mg/kg	100		<100	<100
TRH C10-C36 Total	mg/kg	110		<110	<110
TRH C10-C40 Total	mg/kg	210		<210	<210
TRH F Bands					
TRH >C10-C16 (F2)	mg/kg	25		<25	<25
TRH >C16-C34 (F3)	mg/kg	90		<90	<90
TRH >C34-C40 (F4)	mg/kg	120		<120	<120
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420					
Naphthalene	mg/kg	0.1		<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1		<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1		<0.1	<0.1
Acenaphthylene	mg/kg	0.1		<0.1	<0.1
Acenaphthene	mg/kg	0.1		<0.1	<0.1
Fluorene	mg/kg	0.1		<0.1	<0.1
Phenanthrene	mg/kg	0.1		<0.1	<0.1
Anthracene	mg/kg	0.1		<0.1	<0.1
Fluoranthene	mg/kg	0.1		<0.1	<0.1
Pyrene	mg/kg	0.1		<0.1	<0.1
Benzo(a)anthracene	mg/kg	0.1		<0.1	<0.1
Chrysene	mg/kg	0.1		<0.1	<0.1
Benzo(b&j)fluoranthene	mg/kg	0.1		<0.1	<0.1
Benzo(k)fluoranthene	mg/kg	0.1		<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1		<0.1	<0.1
Indeno(1,2,3-cd)pyrene	mg/kg	0.1		<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1		<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1		<0.1	<0.1
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2		<0.2	<0.2
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3		<0.3	<0.3
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2		<0.2	<0.2
Total PAH	mg/kg	0.8		<0.8	<0.8

Parameter	Units	LOR	Sample Number: SE129214.005 Sample Matrix: Soil Sample Date: 26/6/14 8:00 Sample Name: BH5-1	Sample Number: SE129214.006 Sample Matrix: Soil Sample Date: 26/6/14 8:00 Sample Name: BH5-2
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 (continued)				
Surrogates				
d5-nitrobenzene (Surrogate)	%	-	**92**	**102**
2-fluorobiphenyl (Surrogate)	%	-	**92**	**98**
d14-p-terphenyl (Surrogate)	%	-	**96**	**102**
OC Pesticides in Soil Method: AN400/AN420				
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1
Alpha BHC	mg/kg	0.1	<0.1	<0.1
Lindane	mg/kg	0.1	<0.1	<0.1
Heptachlor	mg/kg	0.1	<0.1	<0.1
Aldrin	mg/kg	0.1	<0.1	<0.1
Beta BHC	mg/kg	0.1	<0.1	<0.1
Delta BHC	mg/kg	0.1	<0.1	<0.1
Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1
o,p'-DDE	mg/kg	0.1	<0.1	<0.1
Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2
Gamma Chlordane	mg/kg	0.1	<0.1	<0.1
Alpha Chlordane	mg/kg	0.1	<0.1	<0.1
trans-Nonachlor	mg/kg	0.1	<0.1	<0.1
p,p'-DDE	mg/kg	0.1	<0.1	<0.1
Dieldrin	mg/kg	0.2	<0.2	<0.2
Endrin	mg/kg	0.2	<0.2	<0.2
o,p'-DDD	mg/kg	0.1	<0.1	<0.1
o,p'-DDT	mg/kg	0.1	<0.1	<0.1
Beta Endosulfan	mg/kg	0.2	<0.2	<0.2
p,p'-DDD	mg/kg	0.1	<0.1	<0.1
p,p'-DDT	mg/kg	0.1	<0.1	<0.1
Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1
Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1
Methoxychlor	mg/kg	0.1	<0.1	<0.1
Endrin Ketone	mg/kg	0.1	<0.1	<0.1
Isodrin	mg/kg	0.1	<0.1	<0.1
Mirex	mg/kg	0.1	<0.1	<0.1
Surrogates				
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**101**	**116**
OP Pesticides in Soil Method: AN400/AN420				
Dichlorvos	mg/kg	0.5	<0.5	<0.5
Dimethoate	mg/kg	0.5	<0.5	<0.5
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5
Fenitrothion	mg/kg	0.2	<0.2	<0.2
Malathion	mg/kg	0.2	<0.2	<0.2
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2
Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2
Methidathion	mg/kg	0.5	<0.5	<0.5
Ethion	mg/kg	0.2	<0.2	<0.2
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2

Parameter	Units	LOR	Sample Number: SE129214.005 Sample Matrix: Soil Sample Date: 26/6/14 8:00 Sample Name: BH5-1	Sample Number: SE129214.006 Sample Matrix: Soil Sample Date: 26/6/14 8:00 Sample Name: BH5-2
OP Pesticides in Soil Method: AN400/AN420 (continued)				
Surrogates				
2-fluorobiphenyl (Surrogate)	%	-	**92**	**98**
d14-p-terphenyl (Surrogate)	%	-	**96**	**102**
PCBs in Soil Method: AN400/AN420				
Arochlor 1016	mg/kg	0.2	<0.2	<0.2
Arochlor 1221	mg/kg	0.2	<0.2	<0.2
Arochlor 1232	mg/kg	0.2	<0.2	<0.2
Arochlor 1242	mg/kg	0.2	<0.2	<0.2
Arochlor 1248	mg/kg	0.2	<0.2	<0.2
Arochlor 1254	mg/kg	0.2	<0.2	<0.2
Arochlor 1260	mg/kg	0.2	<0.2	<0.2
Arochlor 1262	mg/kg	0.2	<0.2	<0.2
Arochlor 1268	mg/kg	0.2	<0.2	<0.2
Total PCBs (Arochlors)	mg/kg	1	<1	<1
Surrogates				
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**101**	**116**
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320				
Arsenic, As	mg/kg	3	<3	**12**
Cadmium, Cd	mg/kg	0.3	<0.3	**0.4**
Chromium, Cr	mg/kg	0.3	**7.5**	**19**
Copper, Cu	mg/kg	0.5	**13**	**13**
Lead, Pb	mg/kg	1	**14**	**28**
Nickel, Ni	mg/kg	0.5	**4.4**	**2.8**
Zinc, Zn	mg/kg	0.5	**65**	**38**
Mercury in Soil Method: AN312				
Mercury	mg/kg	0.01	**0.02**	**0.07**
Fibre Identification in soil Method: AN602				
FibreID				
Asbestos Detected	No unit	-	-	-
SemiQuant				
Estimated Fibres	%w/w	0.01	-	-

Parameter	Units	LOR	Sample Number: SE129214.005 Sample Matrix: Soil Sample Date: 26/6/14 8:00 Sample Name: BH5-1	Sample Number: SE129214.006 Sample Matrix: Soil Sample Date: 26/6/14 8:00 Sample Name: BH5-2
Moisture Content Method: AN002				
% Moisture	%	0.5	**7.9**	**17**

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Mercury in Soil **Method: ME-(AU)-[ENV]AN312**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB060280	mg/kg	0.01	<0.01	0%	110%	105%

Moisture Content **Method: ME-(AU)-[ENV]AN002**

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB060252	%	0.5	1 - 6%

OC Pesticides in Soil **Method: ME-(AU)-[ENV]AN400/AN420**

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Hexachlorobenzene (HCB)	LB060074	mg/kg	0.1	<0.1	NA
Alpha BHC	LB060074	mg/kg	0.1	<0.1	NA
Lindane	LB060074	mg/kg	0.1	<0.1	NA
Heptachlor	LB060074	mg/kg	0.1	<0.1	140%
Aldrin	LB060074	mg/kg	0.1	<0.1	140%
Beta BHC	LB060074	mg/kg	0.1	<0.1	NA
Delta BHC	LB060074	mg/kg	0.1	<0.1	140%
Heptachlor epoxide	LB060074	mg/kg	0.1	<0.1	NA
o,p'-DDE	LB060074	mg/kg	0.1	<0.1	NA
Alpha Endosulfan	LB060074	mg/kg	0.2	<0.2	NA
Gamma Chlordane	LB060074	mg/kg	0.1	<0.1	NA
Alpha Chlordane	LB060074	mg/kg	0.1	<0.1	NA
trans-Nonachlor	LB060074	mg/kg	0.1	<0.1	NA
p,p'-DDE	LB060074	mg/kg	0.1	<0.1	NA
Dieldrin	LB060074	mg/kg	0.2	<0.2	134%
Endrin	LB060074	mg/kg	0.2	<0.2	135%
o,p'-DDD	LB060074	mg/kg	0.1	<0.1	NA
o,p'-DDT	LB060074	mg/kg	0.1	<0.1	NA
Beta Endosulfan	LB060074	mg/kg	0.2	<0.2	NA
p,p'-DDD	LB060074	mg/kg	0.1	<0.1	NA
p,p'-DDT	LB060074	mg/kg	0.1	<0.1	90%
Endosulfan sulphate	LB060074	mg/kg	0.1	<0.1	NA
Endrin Aldehyde	LB060074	mg/kg	0.1	<0.1	NA
Methoxychlor	LB060074	mg/kg	0.1	<0.1	NA
Endrin Ketone	LB060074	mg/kg	0.1	<0.1	NA
Isodrin	LB060074	mg/kg	0.1	<0.1	NA
Mirex	LB060074	mg/kg	0.1	<0.1	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB060074	%	-	116%	110%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

OP Pesticides in Soil **Method: ME-(AU)-[ENV]AN400/AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Dichlorvos	LB060074	mg/kg	0.5	<0.5	0%	84%	95%	4%
Dimethoate	LB060074	mg/kg	0.5	<0.5	0%	NA	NA	NA
Diazinon (Dimpylate)	LB060074	mg/kg	0.5	<0.5	0%	76%	87%	8%
Fenitrothion	LB060074	mg/kg	0.2	<0.2	0%	NA	NA	NA
Malathion	LB060074	mg/kg	0.2	<0.2	0%	NA	NA	NA
Chlorpyrifos (Chlorpyrifos Ethyl)	LB060074	mg/kg	0.2	<0.2	0%	77%	89%	3%
Parathion-ethyl (Parathion)	LB060074	mg/kg	0.2	<0.2	0%	NA	NA	NA
Bromophos Ethyl	LB060074	mg/kg	0.2	<0.2	0%	NA	NA	NA
Methidathion	LB060074	mg/kg	0.5	<0.5	0%	NA	NA	NA
Ethion	LB060074	mg/kg	0.2	<0.2	0%	77%	98%	7%
Azinphos-methyl (Guthion)	LB060074	mg/kg	0.2	<0.2	0%	NA	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
2-fluorobiphenyl (Surrogate)	LB060074	%	-	100%	4%	92%	92%	2%
d14-p-terphenyl (Surrogate)	LB060074	%	-	108%	4%	88%	98%	0%

PAH (Polynuclear Aromatic Hydrocarbons) in Soil **Method: ME-(AU)-[ENV]AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
Naphthalene	LB060074	mg/kg	0.1	<0.1	0%	103%	91%	1%
2-methylnaphthalene	LB060074	mg/kg	0.1	<0.1	0%	NA	NA	NA
1-methylnaphthalene	LB060074	mg/kg	0.1	<0.1	0%	NA	NA	NA
Acenaphthylene	LB060074	mg/kg	0.1	<0.1	0%	107%	92%	4%
Acenaphthene	LB060074	mg/kg	0.1	<0.1	0%	110%	91%	9%
Fluorene	LB060074	mg/kg	0.1	<0.1	0%	NA	NA	NA
Phenanthrene	LB060074	mg/kg	0.1	<0.1	0%	109%	94%	0%
Anthracene	LB060074	mg/kg	0.1	<0.1	0%	105%	91%	1%
Fluoranthene	LB060074	mg/kg	0.1	<0.1	0 - 7%	99%	87%	9%
Pyrene	LB060074	mg/kg	0.1	<0.1	0%	103%	86%	1%
Benzo(a)anthracene	LB060074	mg/kg	0.1	<0.1	0%	NA	NA	NA
Chrysene	LB060074	mg/kg	0.1	<0.1	0%	NA	NA	NA
Benzo(b&j)fluoranthene	LB060074	mg/kg	0.1	<0.1	0%	NA	NA	NA
Benzo(k)fluoranthene	LB060074	mg/kg	0.1	<0.1	0%	NA	NA	NA
Benzo(a)pyrene	LB060074	mg/kg	0.1	<0.1	0%	113%	96%	0%
Indeno(1,2,3-cd)pyrene	LB060074	mg/kg	0.1	<0.1	0%	NA	NA	NA
Dibenzo(a&h)anthracene	LB060074	mg/kg	0.1	<0.1	0%	NA	NA	NA
Benzo(ghi)perylene	LB060074	mg/kg	0.1	<0.1	0%	NA	NA	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	LB060074	TEQ	0.2	<0.2	0%	NA	NA	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	LB060074	TEQ (mg/kg)	0.3	<0.3	0%	NA	NA	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	LB060074	TEQ (mg/kg)	0.2	<0.2	0%	NA	NA	NA
Total PAH	LB060074	mg/kg	0.8	<0.8	0%	NA	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
d5-nitrobenzene (Surrogate)	LB060074	%	-	102%	0 - 4%	92%	96%	2%
2-fluorobiphenyl (Surrogate)	LB060074	%	-	100%	4%	94%	92%	2%
d14-p-terphenyl (Surrogate)	LB060074	%	-	108%	3 - 4%	102%	98%	0%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

PCBs in Soil **Method: ME-(AU)-[ENV]AN400/AN420**

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Arochlor 1016	LB060074	mg/kg	0.2	<0.2	NA
Arochlor 1221	LB060074	mg/kg	0.2	<0.2	NA
Arochlor 1232	LB060074	mg/kg	0.2	<0.2	NA
Arochlor 1242	LB060074	mg/kg	0.2	<0.2	NA
Arochlor 1248	LB060074	mg/kg	0.2	<0.2	NA
Arochlor 1254	LB060074	mg/kg	0.2	<0.2	NA
Arochlor 1260	LB060074	mg/kg	0.2	<0.2	114%
Arochlor 1262	LB060074	mg/kg	0.2	<0.2	NA
Arochlor 1268	LB060074	mg/kg	0.2	<0.2	NA
Total PCBs (Arochlors)	LB060074	mg/kg	1	<1	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB060074	%	-	116%	109%

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest **Method: ME-(AU)-[ENV]AN040/AN320**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB060279	mg/kg	3	<3	3 - 28%	102%	90%
Cadmium, Cd	LB060279	mg/kg	0.3	<0.3	0%	102%	90%
Chromium, Cr	LB060279	mg/kg	0.3	<0.3	3 - 11%	101%	87%
Copper, Cu	LB060279	mg/kg	0.5	<0.5	0 - 20%	102%	93%
Lead, Pb	LB060279	mg/kg	1	<1	0 - 8%	101%	79%
Nickel, Ni	LB060279	mg/kg	0.5	<0.5	12 - 22%	104%	91%
Zinc, Zn	LB060279	mg/kg	0.5	<0.5	1 - 31%	103%	89%

TRH (Total Recoverable Hydrocarbons) in Soil **Method: ME-(AU)-[ENV]AN403**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
TRH C10-C14	LB060074	mg/kg	20	<20	0%	100%	83%	0%
TRH C15-C28	LB060074	mg/kg	45	<45	1%	98%	80%	3%
TRH C29-C36	LB060074	mg/kg	45	<45	3%	93%	88%	6%
TRH C37-C40	LB060074	mg/kg	100	<100	0%	NA	NA	NA
TRH C10-C36 Total	LB060074	mg/kg	110	<110	1%	NA	NA	NA
TRH C10-C40 Total	LB060074	mg/kg	210	<210	1%	NA	NA	NA

TRH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery	MSD %RPD
TRH >C10-C16 (F2)	LB060074	mg/kg	25	<25	5%	100%	80%	0%
TRH >C16-C34 (F3)	LB060074	mg/kg	90	<90	1%	98%	83%	6%
TRH >C34-C40 (F4)	LB060074	mg/kg	120	<120	0%	90%	NA	NA

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

VOC's in Soil Method: ME-(AU)-[ENV]AN433/AN434

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene	LB060120	mg/kg	0.1	<0.1	0%	84%	78%
Toluene	LB060120	mg/kg	0.1	<0.1	0%	124%	105%
Ethylbenzene	LB060120	mg/kg	0.1	<0.1	0%	112%	86%
m/p-xylene	LB060120	mg/kg	0.2	<0.2	0%	112%	76%
o-xylene	LB060120	mg/kg	0.1	<0.1	0%	108%	68%

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Naphthalene	LB060120	mg/kg	0.1	<0.1	0%	NA	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dibromofluoromethane (Surrogate)	LB060120	%	-	71%	3 - 5%	84%	77%
d4-1,2-dichloroethane (Surrogate)	LB060120	%	-	73%	17 - 33%	89%	78%
d8-toluene (Surrogate)	LB060120	%	-	120%	5 - 36%	110%	122%
Bromofluorobenzene (Surrogate)	LB060120	%	-	76%	6 - 8%	118%	84%

Totals

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Total Xylenes*	LB060120	mg/kg	0.3	<0.3	0%	NA	NA
Total BTEX*	LB060120	mg/kg	0.6	<0.6	0%	NA	NA

Volatile Petroleum Hydrocarbons in Soil Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
TRH C6-C10	LB060120	mg/kg	25	<25	0%	113%	93%
TRH C6-C9	LB060120	mg/kg	20	<20	0%	109%	87%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Dibromofluoromethane (Surrogate)	LB060120	%	-	71%	3 - 5%	84%	77%
d4-1,2-dichloroethane (Surrogate)	LB060120	%	-	73%	17 - 33%	89%	78%
d8-toluene (Surrogate)	LB060120	%	-	120%	5 - 36%	110%	122%
Bromofluorobenzene (Surrogate)	LB060120	%	-	76%	6 - 8%	118%	84%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Benzene (F0)	LB060120	mg/kg	0.1	<0.1	0%	NA	NA
TRH C6-C10 minus BTEX (F1)	LB060120	mg/kg	25	<25	0%	123%	119%

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analsysis by ASS or ICP as per USEPA Method 200.8.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN088	Orbital rolling for Organic pollutants are extracted from soil/sediment by transferring an appropriate mass of sample to a clear soil jar and extracting with 1:1 Dichloromethane/Acetone. Orbital Rolling method is intended for the extraction of semi-volatile organic compounds from soil/sediment samples, and is based somewhat on USEPA method 3570 (Micro Organic extraction and sample preparation). Method 3700.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is not corrected for Naphthalene.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN433/AN434/AN410	VOCs and C6-C9/C6-C10 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	This analysis is not covered by the scope of accreditation.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
^	Performed by outside laboratory.	-	The sample was not analysed for this analyte
		NVL	Not Validated

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au.pv.sgsv3/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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STATEMENT OF QA/QC PERFORMANCE

SE129214 R0

CLIENT DETAILS

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Project	**E22232 - Milton St - Ashbury**
Order Number	**E22232**
Samples	6

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SGS Reference	SE129214 R0
Report Number	0000086557
Date Reported	08 Jul 2014

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS Environmental Services' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Volatile Petroleum Hydrocarbons in Soil	2 items

SAMPLE SUMMARY

Sample counts by matrix	6 Soils	Type of documentation received	COC
Date documentation received	1/7/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3.7°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE129214 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH5-ASB_ZLB	SE129214.004	LB060323	26 Jun 2014	01 Jul 2014	26 Jun 2015	07 Jul 2014	26 Jun 2015	08 Jul 2014

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-2	SE129214.001	LB060280	27 Jun 2014	01 Jul 2014	25 Jul 2014	07 Jul 2014	25 Jul 2014	07 Jul 2014
BH1-3	SE129214.002	LB060280	27 Jun 2014	01 Jul 2014	25 Jul 2014	07 Jul 2014	25 Jul 2014	07 Jul 2014
BH5-1	SE129214.005	LB060280	26 Jun 2014	01 Jul 2014	24 Jul 2014	07 Jul 2014	24 Jul 2014	07 Jul 2014
BH5-2	SE129214.006	LB060280	26 Jun 2014	01 Jul 2014	24 Jul 2014	07 Jul 2014	24 Jul 2014	07 Jul 2014

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-2	SE129214.001	LB060252	27 Jun 2014	01 Jul 2014	11 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH1-3	SE129214.002	LB060252	27 Jun 2014	01 Jul 2014	11 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH1-7	SE129214.003	LB060252	27 Jun 2014	01 Jul 2014	11 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH5-1	SE129214.005	LB060252	26 Jun 2014	01 Jul 2014	10 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014
BH5-2	SE129214.006	LB060252	26 Jun 2014	01 Jul 2014	10 Jul 2014	04 Jul 2014	09 Jul 2014	07 Jul 2014

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-2	SE129214.001	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH1-3	SE129214.002	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH1-7	SE129214.003	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH5-1	SE129214.005	LB060074	26 Jun 2014	01 Jul 2014	10 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH5-2	SE129214.006	LB060074	26 Jun 2014	01 Jul 2014	10 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-2	SE129214.001	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH1-3	SE129214.002	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH1-7	SE129214.003	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH5-1	SE129214.005	LB060074	26 Jun 2014	01 Jul 2014	10 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH5-2	SE129214.006	LB060074	26 Jun 2014	01 Jul 2014	10 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-2	SE129214.001	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH1-3	SE129214.002	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH1-7	SE129214.003	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH5-1	SE129214.005	LB060074	26 Jun 2014	01 Jul 2014	10 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH5-2	SE129214.006	LB060074	26 Jun 2014	01 Jul 2014	10 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-2	SE129214.001	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH1-3	SE129214.002	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH1-7	SE129214.003	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH5-1	SE129214.005	LB060074	26 Jun 2014	01 Jul 2014	10 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH5-2	SE129214.006	LB060074	26 Jun 2014	01 Jul 2014	10 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-2	SE129214.001	LB060279	27 Jun 2014	01 Jul 2014	24 Dec 2014	07 Jul 2014	24 Dec 2014	07 Jul 2014
BH1-3	SE129214.002	LB060279	27 Jun 2014	01 Jul 2014	24 Dec 2014	07 Jul 2014	24 Dec 2014	07 Jul 2014
BH5-1	SE129214.005	LB060279	26 Jun 2014	01 Jul 2014	23 Dec 2014	07 Jul 2014	23 Dec 2014	07 Jul 2014
BH5-2	SE129214.006	LB060279	26 Jun 2014	01 Jul 2014	23 Dec 2014	07 Jul 2014	23 Dec 2014	07 Jul 2014

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-2	SE129214.001	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	08 Jul 2014
BH1-3	SE129214.002	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	08 Jul 2014
BH1-7	SE129214.003	LB060074	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	08 Jul 2014
BH5-1	SE129214.005	LB060074	26 Jun 2014	01 Jul 2014	10 Jul 2014	02 Jul 2014	11 Aug 2014	08 Jul 2014
BH5-2	SE129214.006	LB060074	26 Jun 2014	01 Jul 2014	10 Jul 2014	02 Jul 2014	11 Aug 2014	08 Jul 2014

HOLDING TIME SUMMARY

SE129214 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-2	SE129214.001	LB060120	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH1-3	SE129214.002	LB060120	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH1-7	SE129214.003	LB060120	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH5-1	SE129214.005	LB060120	26 Jun 2014	01 Jul 2014	10 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH5-2	SE129214.006	LB060120	26 Jun 2014	01 Jul 2014	10 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH1-2	SE129214.001	LB060120	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH1-3	SE129214.002	LB060120	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH1-7	SE129214.003	LB060120	27 Jun 2014	01 Jul 2014	11 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH5-1	SE129214.005	LB060120	26 Jun 2014	01 Jul 2014	10 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014
BH5-2	SE129214.006	LB060120	26 Jun 2014	01 Jul 2014	10 Jul 2014	02 Jul 2014	11 Aug 2014	07 Jul 2014

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	109
	BH1-3	SE129214.002	%	60 - 130%	107
	BH5-1	SE129214.005	%	60 - 130%	101
	BH5-2	SE129214.006	%	60 - 130%	116

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	96
	BH1-3	SE129214.002	%	60 - 130%	90
	BH5-1	SE129214.005	%	60 - 130%	92
	BH5-2	SE129214.006	%	60 - 130%	98
d14-p-terphenyl (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	102
	BH1-3	SE129214.002	%	60 - 130%	98
	BH5-1	SE129214.005	%	60 - 130%	96
	BH5-2	SE129214.006	%	60 - 130%	102

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	96
	BH1-3	SE129214.002	%	60 - 130%	90
	BH5-1	SE129214.005	%	60 - 130%	92
	BH5-2	SE129214.006	%	60 - 130%	98
d14-p-terphenyl (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	102
	BH1-3	SE129214.002	%	60 - 130%	98
	BH5-1	SE129214.005	%	60 - 130%	96
	BH5-2	SE129214.006	%	60 - 130%	102
d5-nitrobenzene (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	98
	BH1-3	SE129214.002	%	60 - 130%	94
	BH5-1	SE129214.005	%	60 - 130%	92
	BH5-2	SE129214.006	%	60 - 130%	102

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	109
	BH1-3	SE129214.002	%	60 - 130%	107
	BH5-1	SE129214.005	%	60 - 130%	101
	BH5-2	SE129214.006	%	60 - 130%	116

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	72
	BH1-3	SE129214.002	%	60 - 130%	75
	BH1-7	SE129214.003	%	60 - 130%	73
	BH5-1	SE129214.005	%	60 - 130%	78
	BH5-2	SE129214.006	%	60 - 130%	72
d4-1,2-dichloroethane (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	71
	BH1-3	SE129214.002	%	60 - 130%	96
	BH1-7	SE129214.003	%	60 - 130%	75
	BH5-1	SE129214.005	%	60 - 130%	99
	BH5-2	SE129214.006	%	60 - 130%	73
d8-toluene (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	109
	BH1-3	SE129214.002	%	60 - 130%	130
	BH1-7	SE129214.003	%	60 - 130%	91
	BH5-1	SE129214.005	%	60 - 130%	109
	BH5-2	SE129214.006	%	60 - 130%	108
Dibromofluoromethane (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	72
	BH1-3	SE129214.002	%	60 - 130%	88
	BH1-7	SE129214.003	%	60 - 130%	79
	BH5-1	SE129214.005	%	60 - 130%	86
	BH5-2	SE129214.006	%	60 - 130%	72

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) **Method: ME-(AU)-[ENV]AN433/AN434/AN410**

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	72
	BH1-3	SE129214.002	%	60 - 130%	75
	BH1-7	SE129214.003	%	60 - 130%	73
	BH5-1	SE129214.005	%	60 - 130%	78
	BH5-2	SE129214.006	%	60 - 130%	72
d4-1,2-dichloroethane (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	71
	BH1-3	SE129214.002	%	60 - 130%	96
	BH1-7	SE129214.003	%	60 - 130%	75
	BH5-1	SE129214.005	%	60 - 130%	99
	BH5-2	SE129214.006	%	60 - 130%	73
d8-toluene (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	109
	BH1-3	SE129214.002	%	60 - 130%	130
	BH1-7	SE129214.003	%	60 - 130%	91
	BH5-1	SE129214.005	%	60 - 130%	109
	BH5-2	SE129214.006	%	60 - 130%	108
Dibromofluoromethane (Surrogate)	BH1-2	SE129214.001	%	60 - 130%	72
	BH1-3	SE129214.002	%	60 - 130%	88
	BH1-7	SE129214.003	%	60 - 130%	79
	BH5-1	SE129214.005	%	60 - 130%	86
	BH5-2	SE129214.006	%	60 - 130%	72

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB060280.001	Mercury	mg/kg	0.01	<0.01

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB060074.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	116

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB060074.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	100
		d14-p-terphenyl (Surrogate)	%	-	108

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB060074.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB060074.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	102
		2-fluorobiphenyl (Surrogate)	%	-	100
		d14-p-terphenyl (Surrogate)	%	-	108

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB060074.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	116

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number		Parameter	Units	LOR	Result
LB060279.001		Arsenic, As	mg/kg	3	<3
		Cadmium, Cd	mg/kg	0.3	<0.3
		Chromium, Cr	mg/kg	0.3	<0.3
		Copper, Cu	mg/kg	0.5	<0.5
		Lead, Pb	mg/kg	1	<1
		Nickel, Ni	mg/kg	0.5	<0.5
		Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result
LB060074.001		TRH C10-C14	mg/kg	20	<20
		TRH C15-C28	mg/kg	45	<45
		TRH C29-C36	mg/kg	45	<45
		TRH C37-C40	mg/kg	100	<100
		TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB060120.001	Monocyclic Aromatic	Benzene	mg/kg	0.1	<0.1
	Hydrocarbons	Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		o-xylene	mg/kg	0.1	<0.1
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	71
		d4-1,2-dichloroethane (Surrogate)	%	-	73
		d8-toluene (Surrogate)	%	-	120
		Bromofluorobenzene (Surrogate)	%	-	76
	Totals	Total BTEX*	mg/kg	0.6	<0.6

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result
LB060120.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	71
		d4-1,2-dichloroethane (Surrogate)	%	-	73
		d8-toluene (Surrogate)	%	-	120

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129222.001	LB060280.014	Mercury	mg/kg	0.01	0.00380557940	0.0043488315	200	0
SE129273.001	LB060280.022	Mercury	mg/kg	0.01	-0.00943855930	0.0100105932	200	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129214.006	LB060252.011	% Moisture	%w/w	0.5	17	18	36	6
SE129222.006	LB060252.018	% Moisture	%w/w	0.5	17.845117845	17.9640718562	36	1

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129214.005	LB060074.014		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129214.005	LB060074.014		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	4
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
SE129234.002	LB060074.026		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129234.002	LB060074.026		Fluoranthene	mg/kg	0.1	0.1	0.1	104	7
			Pyrene	mg/kg	0.1	0.1	0.1	130	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	0
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	4
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.4	30	3

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129222.001	LB060279.014	Arsenic, As	mg/kg	3	10.3408002955	7.8157630098	41	28
		Cadmium, Cd	mg/kg	0.3	0.1334205575	0.2091394578	200	0
		Chromium, Cr	mg/kg	0.3	19.2516812311	8.591037671(	33	3
		Copper, Cu	mg/kg	0.5	29.1738114438	3.785070243!	32	20
		Lead, Pb	mg/kg	1	14.1515270999	5.338128755!	37	8
		Nickel, Ni	mg/kg	0.5	13.2360968322	0.642598692(	34	22
		Zinc, Zn	mg/kg	0.5	58.6393208250	2.8490714103	34	31
SE129273.001	LB060279.022	Arsenic, As	mg/kg	3	2.0156321148	2.0713610461	79	3
		Cadmium, Cd	mg/kg	0.3	0.0685123007	0.0353433445	200	0
		Chromium, Cr	mg/kg	0.3	11.3682487983	0.171222969(	35	11
		Copper, Cu	mg/kg	0.5	7.5136225651	7.4948275862	37	0
		Lead, Pb	mg/kg	1	0.0827383000	0.3504450613	200	0
		Nickel, Ni	mg/kg	0.5	1.1048308246	1.2487697253	72	12
		Zinc, Zn	mg/kg	0.5	52.6471034654	72.472165400:	31	1

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129234.002	LB060074.025		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	3400	3400	31	1
			TRH C29-C36	mg/kg	45	120	120	67	3
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	3500	3600	33	1
			TRH C10-C40 Total	mg/kg	210	3500	3600	36	1
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	65	68	68	5
			TRH >C16-C34 (F3)	mg/kg	90	3500	3500	33	1
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129222.001	LB060120.014	Monocyclic	Benzene	mg/kg	0.1	0	0	200	0
		Aromatic	Toluene	mg/kg	0.1	0	0	200	0
			Ethylbenzene	mg/kg	0.1	0	0	200	0
			m/p-xylene	mg/kg	0.2	0	0	200	0
			o-xylene	mg/kg	0.1	0	0	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4	4.14	50	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.57	4.99	50	33
			d8-toluene (Surrogate)	mg/kg	-	5.02	5.27	50	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.28	4.03	50	6
		Totals	Total Xylenes*	mg/kg	0.3	0	0	200	0
			Total BTEX*	mg/kg	0.6	0	0	200	0
SE129226.001	LB060120.021	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129226.001	LB060120.021	Monocyclic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.8	50	5
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.8	4.5	50	17
			d8-toluene (Surrogate)	mg/kg	-	6.2	4.4	50	36
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	3.9	50	8
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129222.001	LB060120.014		TRH C6-C10	mg/kg	25	0	0	200	0
			TRH C6-C9	mg/kg	20	0	0	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4	4.14	30	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.57	4.99	30	33 †
			d8-toluene (Surrogate)	mg/kg	-	5.02	5.27	30	5
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.28	4.03	30	6
		VPH F Bands	Benzene (F0)	mg/kg	0.1	0	0	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	0	0	200	0
SE129226.001	LB060120.021		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.6	3.8	30	5
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.8	4.5	30	17
			d8-toluene (Surrogate)	mg/kg	-	6.2	4.4	30	36 †
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	3.9	30	8
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060280.002	Mercury	mg/kg	0.01	0.22	0.2	70 - 130	110

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060074.002		Heptachlor	mg/kg	0.1	0.3	0.2	60 - 140	140
		Aldrin	mg/kg	0.1	0.3	0.2	60 - 140	140
		Delta BHC	mg/kg	0.1	0.3	0.2	60 - 140	140
		Dieldrin	mg/kg	0.2	0.3	0.2	60 - 140	134
		Endrin	mg/kg	0.2	0.3	0.2	60 - 140	135
		p,p'-DDT	mg/kg	0.1	0.2	0.2	60 - 140	90
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.17	0.15	40 - 130	110

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060074.002		Dichlorvos	mg/kg	0.5	1.7	2	60 - 140	84
		Diazinon (Dimpylate)	mg/kg	0.5	1.5	2	60 - 140	76
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.5	2	60 - 140	77
		Ethion	mg/kg	0.2	1.5	2	60 - 140	77
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.4	0.5	40 - 130	88

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060074.002		Naphthalene	mg/kg	0.1	4.1	4	60 - 140	103
		Acenaphthylene	mg/kg	0.1	4.3	4	60 - 140	107
		Acenaphthene	mg/kg	0.1	4.4	4	60 - 140	110
		Phenanthrene	mg/kg	0.1	4.4	4	60 - 140	109
		Anthracene	mg/kg	0.1	4.2	4	60 - 140	105
		Fluoranthene	mg/kg	0.1	4.0	4	60 - 140	99
		Pyrene	mg/kg	0.1	4.1	4	60 - 140	103
		Benzo(a)pyrene	mg/kg	0.1	4.5	4	60 - 140	113
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	92
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	102

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060074.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	114

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060279.002	Arsenic, As	mg/kg	3	51	50	80 - 120	102
	Cadmium, Cd	mg/kg	0.3	51	50	80 - 120	102
	Chromium, Cr	mg/kg	0.3	51	50	80 - 120	101
	Copper, Cu	mg/kg	0.5	51	50	80 - 120	102
	Lead, Pb	mg/kg	1	51	50	80 - 120	101
	Nickel, Ni	mg/kg	0.5	52	50	80 - 120	104
	Zinc, Zn	mg/kg	0.5	51	50	80 - 120	103

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060074.002		TRH C10-C14	mg/kg	20	40	40	60 - 140	100
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	98
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	93
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	40	40	60 - 140	100
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	98
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	90

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060120.002	Monocyclic	Benzene	mg/kg	0.1	2.4	2.9	60 - 140	84
	Aromatic	Toluene	mg/kg	0.1	3.6	2.9	60 - 140	124
		Ethylbenzene	mg/kg	0.1	3.3	2.9	60 - 140	112
		m/p-xylene	mg/kg	0.2	6.5	5.8	60 - 140	112
		o-xylene	mg/kg	0.1	3.1	2.9	60 - 140	108
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	84
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
		d8-toluene (Surrogate)	mg/kg	-	5.5	5	60 - 140	110
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.9	5	60 - 140	118

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060120.002		TRH C6-C10	mg/kg	25	28	24.65	60 - 140	113
		TRH C6-C9	mg/kg	20	25	23.2	60 - 140	109
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.2	5	60 - 140	84
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	4.4	5	60 - 140	89
		d8-toluene (Surrogate)	mg/kg	-	5.5	5	60 - 140	110
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.9	5	60 - 140	118
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	123

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub -sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129208.001	LB060280.004	Mercury	mg/kg	0.01	0.22	<0.01	0.2	105

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129214.001	LB060074.009		Dichlorvos	mg/kg	0.5	1.9	<0.5	2	95
			Dimethoate	mg/kg	0.5	<0.5	<0.5	-	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.7	<0.5	2	87
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	-	-
			Malathion	mg/kg	0.2	<0.2	<0.2	-	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	<0.2	2	89
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	-	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	-	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	-	-
			Ethion	mg/kg	0.2	2.0	<0.2	2	98
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	-	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	0.5	92
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	0.5	98

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129214.001	LB060074.009		Naphthalene	mg/kg	0.1	3.6	<0.1	4	91
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	-	-
			Acenaphthylene	mg/kg	0.1	3.7	<0.1	4	92
			Acenaphthene	mg/kg	0.1	3.6	<0.1	4	91
			Fluorene	mg/kg	0.1	<0.1	<0.1	-	-
			Phenanthrene	mg/kg	0.1	3.8	<0.1	4	94
			Anthracene	mg/kg	0.1	3.6	<0.1	4	91
			Fluoranthene	mg/kg	0.1	3.5	<0.1	4	87
			Pyrene	mg/kg	0.1	3.4	<0.1	4	86
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(a)pyrene	mg/kg	0.1	3.9	<0.1	4	96
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	-	-
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	-	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	-	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ	0.2	3.9	<0.2	-	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	4.0	<0.3	-	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	3.9	<0.2	-	-
			Total PAH	mg/kg	0.8	29	<0.8	-	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	-	96
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	92
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	-	98

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129208.001	LB060279.004	Arsenic, As	mg/kg	3	51	6	50	90
		Cadmium, Cd	mg/kg	0.3	45	<0.3	50	90
		Chromium, Cr	mg/kg	0.3	60	17	50	87
		Copper, Cu	mg/kg	0.5	68	21	50	93
		Lead, Pb	mg/kg	1	58	19	50	79
		Nickel, Ni	mg/kg	0.5	61	15	50	91
		Zinc, Zn	mg/kg	0.5	75	30	50	89

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number	Parameter	Units	LOR

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub -sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129209.002	LB060074.007		TRH C10-C14	mg/kg	20	33	<20	40	83
			TRH C15-C28	mg/kg	45	<45	<45	40	80
			TRH C29-C36	mg/kg	45	<45	<45	40	88
			TRH C37-C40	mg/kg	100	<100	<100	-	-
			TRH C10-C36 Total	mg/kg	110	<110	<110	-	-
			TRH C10-C40 Total	mg/kg	210	<210	<210	-	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	32	<25	40	80
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	40	83
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	-	-

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129209.001	LB060120.005	Monocyclic	Benzene	mg/kg	0.1	2.3	<0.1	2.9	78
		Aromatic	Toluene	mg/kg	0.1	3.1	<0.1	2.9	105
			Ethylbenzene	mg/kg	0.1	2.5	<0.1	2.9	86
			m/p-xylene	mg/kg	0.2	4.4	<0.2	5.8	76
			o-xylene	mg/kg	0.1	2.0	<0.1	2.9	68
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	-	-
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.9	3.9	5	77
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	4.3	5	78
			d8-toluene (Surrogate)	mg/kg	-	6.1	5.8	5	122
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	4.0	5	84
		Totals	Total Xylenes*	mg/kg	0.3	6.4	<0.3	-	-
			Total BTEX*	mg/kg	0.6	14	<0.6	-	-

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

QC Sample	Sample Number		Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129209.001	LB060120.005		TRH C6-C10	mg/kg	25	<25	0	24.65	93
			TRH C6-C9	mg/kg	20	20	0	23.2	87
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	3.9	3.88	5	77
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	3.9	4.26	5	78
			d8-toluene (Surrogate)	mg/kg	-	6.1	5.8	5	122
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.2	3.97	5	84
		VPH F	Benzene (F0)	mg/kg	0.1	2.3	0	-	-
		Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	0	7.25	119

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129214.001	LB060074.010		Dichlorvos	mg/kg	0.5	1.9	1.8	57	4
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	-
			Diazinon (Dimpylate)	mg/kg	0.5	1.7	1.6	60	8
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	-
			Malathion	mg/kg	0.2	<0.2	<0.2	200	-
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.8	1.7	145	3
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	-
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	-
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	-
			Ethion	mg/kg	0.2	2.0	1.8	41	7
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	-
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

QC Sample	Sample Number		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129214.001	LB060074.010		Naphthalene	mg/kg	0.1	3.6	3.6	33	1
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	-
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	-
			Acenaphthylene	mg/kg	0.1	3.7	3.5	33	4
			Acenaphthene	mg/kg	0.1	3.6	3.3	33	9
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	-
			Phenanthrene	mg/kg	0.1	3.8	3.7	33	0
			Anthracene	mg/kg	0.1	3.6	3.6	33	1
			Fluoranthene	mg/kg	0.1	3.5	3.8	33	9
			Pyrene	mg/kg	0.1	3.4	3.5	33	1
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	-
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	-
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	-
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	-
			Benzo(a)pyrene	mg/kg	0.1	3.9	3.9	33	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	-
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	-
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ	0.2	3.9	3.9	15	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	4.0	4.0	18	-
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	3.9	3.9	15	-
			Total PAH	mg/kg	0.8	29	29	33	-
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	2
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	0

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

QC Sample	Sample Number		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129209.002	LB060074.008		TRH C10-C14	mg/kg	20	33	33	91	0
			TRH C15-C28	mg/kg	45	<45	<45	168	3
			TRH C29-C36	mg/kg	45	<45	<45	155	6
			TRH C37-C40	mg/kg	100	<100	<100	200	-
			TRH C10-C36 Total	mg/kg	110	<110	<110	138	-
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	-
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	32	32	108	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	6
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	-

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

*	Non-accredited analysis.
-	Sample not analysed for this analyte.
^	Analysis performed by external laboratory.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

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ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

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Project	**E22232 - Milton St - Ashbury**
Order Number	**E22232**
Samples	6

LABORATORY DETAILS

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SGS Reference	SE129214 R0
Report Number	0000086558
Date Reported	08 Jul 2014
Date Received	01 Jul 2014

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all samples using trace analysis technique.
Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

Huong Crawford
Production Manager

Kamrul Ahsan
Senior Chemist

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Asbestos Analyst

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w
SE129214.004	BH5-ASB_ZLB	Soil	57g Sand,soil	26 Jun 2014	No Asbestos Found Organic Fibres Detected	<0.01

METHOD SUMMARY

SE129214 R0

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	Not Accredited
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarized light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarized light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarized light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au.pv.sgsv3/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

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Project	**E22232 - 165 Milton Street, Ashbury**	SGS Reference	**SE129375 R0**
Order Number	**E22232**	Report Number	0000086919
Samples	2	Date Reported	14 Jul 2014
		Date Received	07 Jul 2014

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all samples using trace analysis technique.
Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Asbestos Analyst

Parameter	Units	LOR	Sample Number: SE129375.001 Sample Matrix: Soil Sample Date: 07 Jul 2014 Sample Name: BH4-1	Sample Number: SE129375.002 Sample Matrix: Soil Sample Date: 07 Jul 2014 Sample Name: BH4-3
VOC's in Soil Method: AN433/AN434				
Fumigants				
2,2-dichloropropane	mg/kg	0.1	<0.1	-
1,2-dichloropropane	mg/kg	0.1	<0.1	-
cis-1,3-dichloropropene	mg/kg	0.1	<0.1	-
trans-1,3-dichloropropene	mg/kg	0.1	<0.1	-
1,2-dibromoethane (EDB)	mg/kg	0.1	<0.1	-
Halogenated Aliphatics				
Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1	-
Chloromethane	mg/kg	1	<1	-
Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1	-
Bromomethane	mg/kg	1	<1	-
Chloroethane	mg/kg	1	<1	-
Trichlorofluoromethane	mg/kg	1	<1	-
Iodomethane	mg/kg	5	<5	-
1,1-dichloroethene	mg/kg	0.1	<0.1	-
Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5	-
Allyl chloride	mg/kg	0.1	<0.1	-
trans-1,2-dichloroethene	mg/kg	0.1	<0.1	-
1,1-dichloroethane	mg/kg	0.1	<0.1	-
cis-1,2-dichloroethene	mg/kg	0.1	<0.1	-
Bromochloromethane	mg/kg	0.1	<0.1	-
1,2-dichloroethane	mg/kg	0.1	<0.1	-
1,1,1-trichloroethane	mg/kg	0.1	<0.1	-
1,1-dichloropropene	mg/kg	0.1	<0.1	-
Carbon tetrachloride	mg/kg	0.1	<0.1	-
Dibromomethane	mg/kg	0.1	<0.1	-
Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1	-
1,1,2-trichloroethane	mg/kg	0.1	<0.1	-
1,3-dichloropropane	mg/kg	0.1	<0.1	-
Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1	-
1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1	-
cis-1,4-dichloro-2-butene	mg/kg	1	<1	-
1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1	-
1,2,3-trichloropropane	mg/kg	0.1	<0.1	-
trans-1,4-dichloro-2-butene	mg/kg	1	<1	-
1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1	-
Hexachlorobutadiene	mg/kg	0.1	<0.1	-
Halogenated Aromatics				
Chlorobenzene	mg/kg	0.1	<0.1	-
Bromobenzene	mg/kg	0.1	<0.1	-
2-chlorotoluene	mg/kg	0.1	<0.1	-
4-chlorotoluene	mg/kg	0.1	<0.1	-
1,3-dichlorobenzene	mg/kg	0.1	<0.1	-
1,4-dichlorobenzene	mg/kg	0.1	<0.1	-
1,2-dichlorobenzene	mg/kg	0.1	<0.1	-
1,2,4-trichlorobenzene	mg/kg	0.1	<0.1	-
1,2,3-trichlorobenzene	mg/kg	0.1	<0.1	-
Monocyclic Aromatic Hydrocarbons				
Benzene	mg/kg	0.1	<0.1	<0.1
Toluene	mg/kg	0.1	<0.1	<0.1
Ethylbenzene	mg/kg	0.1	<0.1	<0.1
m/p-xylene	mg/kg	0.2	<0.2	<0.2
Styrene (Vinyl benzene)	mg/kg	0.1	<0.1	-
o-xylene	mg/kg	0.1	<0.1	<0.1
Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1	-
n-propylbenzene	mg/kg	0.1	<0.1	-

Parameter	Units	LOR	Sample Number: SE129375.001 Sample Matrix: Soil Sample Date: 07 Jul 2014 Sample Name: BH4-1	Sample Number: SE129375.002 Sample Matrix: Soil Sample Date: 07 Jul 2014 Sample Name: BH4-3
VOC's in Soil Method: AN433/AN434 (continued)				
1,3,5-trimethylbenzene	mg/kg	0.1	<0.1	-
tert-butylbenzene	mg/kg	0.1	<0.1	-
1,2,4-trimethylbenzene	mg/kg	0.1	<0.1	-
sec-butylbenzene	mg/kg	0.1	<0.1	-
p-isopropyltoluene	mg/kg	0.1	<0.1	-
n-butylbenzene	mg/kg	0.1	<0.1	-
Nitrogenous Compounds				
Acrylonitrile	mg/kg	0.1	<0.1	-
2-nitropropane	mg/kg	10	<10	-
Oxygenated Compounds				
Acetone (2-propanone)	mg/kg	10	<10	-
MtBE (Methyl-tert-butyl ether)	mg/kg	0.1	<0.1	-
Vinyl acetate	mg/kg	10	<10	-
MEK (2-butanone)	mg/kg	10	<10	-
MIBK (4-methyl-2-pentanone)	mg/kg	1	<1	-
2-hexanone (MBK)	mg/kg	5	<5	-
Polycyclic VOCs				
Naphthalene	mg/kg	0.1	<0.1	<0.1
Sulphonated Compounds				
Carbon disulfide	mg/kg	0.5	<0.5	-
Surrogates				
Dibromofluoromethane (Surrogate)	%	-	**80**	**83**
d4-1,2-dichloroethane (Surrogate)	%	-	**104**	**99**
d8-toluene (Surrogate)	%	-	**87**	**97**
Bromofluorobenzene (Surrogate)	%	-	**92**	**80**
Totals				
Total Xylenes*	mg/kg	0.3	<0.3	<0.3
Total BTEX*	mg/kg	0.6	<0.6	<0.6
Total VOC*	mg/kg	24	-	-
Trihalomethanes				
Chloroform	mg/kg	0.1	<0.1	-
Bromodichloromethane	mg/kg	0.1	<0.1	-
Chlorodibromomethane	mg/kg	0.1	<0.1	-
Bromoform	mg/kg	0.1	<0.1	-

Parameter	Units	LOR	Sample Number: SE129375.001 Sample Matrix: Soil Sample Date: 07 Jul 2014 Sample Name: BH4-1	Sample Number: SE129375.002 Sample Matrix: Soil Sample Date: 07 Jul 2014 Sample Name: BH4-3
Volatile Petroleum Hydrocarbons in Soil Method: AN433/AN434/AN410				
TRH C6-C10	mg/kg	25	<25	<25
TRH C6-C9	mg/kg	20	<20	<20
Surrogates				
Dibromofluoromethane (Surrogate)	%	-	**83**	**83**
d4-1,2-dichloroethane (Surrogate)	%	-	**100**	**99**
d8-toluene (Surrogate)	%	-	**97**	**97**
Bromofluorobenzene (Surrogate)	%	-	**74**	**80**
VPH F Bands				
Benzene (F0)	mg/kg	0.1	<0.1	<0.1
TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25
TRH (Total Recoverable Hydrocarbons) in Soil Method: AN403				
TRH C10-C14	mg/kg	20	**21**	<20
TRH C15-C28	mg/kg	45	**99**	**58**
TRH C29-C36	mg/kg	45	<45	<45
TRH C37-C40	mg/kg	100	<100	<100
TRH C10-C36 Total	mg/kg	110	**120**	<110
TRH C10-C40 Total	mg/kg	210	<210	<210
TRH F Bands				
TRH >C10-C16 (F2)	mg/kg	25	**28**	<25
TRH >C16-C34 (F3)	mg/kg	90	**110**	<90
TRH >C34-C40 (F4)	mg/kg	120	<120	<120
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420				
Naphthalene	mg/kg	0.1	<0.1	<0.1
2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1
Acenaphthylene	mg/kg	0.1	<0.1	<0.1
Acenaphthene	mg/kg	0.1	<0.1	<0.1
Fluorene	mg/kg	0.1	<0.1	<0.1
Phenanthrene	mg/kg	0.1	**0.3**	**0.2**
Anthracene	mg/kg	0.1	<0.1	<0.1
Fluoranthene	mg/kg	0.1	**0.2**	**0.3**
Pyrene	mg/kg	0.1	**0.2**	**0.2**
Benzo(a)anthracene	mg/kg	0.1	**0.2**	**0.2**
Chrysene	mg/kg	0.1	**0.1**	**0.2**
Benzo(b&j)fluoranthene	mg/kg	0.1	**0.2**	**0.2**
Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1
Benzo(a)pyrene	mg/kg	0.1	<0.1	**0.1**
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1
Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	TEQ	0.2	<0.2	<0.2
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	TEQ (mg/kg)	0.3	<0.3	<0.3
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	TEQ (mg/kg)	0.2	<0.2	**0.2**
Total PAH	mg/kg	0.8	**1.6**	**1.6**

Parameter	Units	LOR	Sample Number: SE129375.001 Sample Matrix: Soil Sample Date: 07 Jul 2014 Sample Name: BH4-1	Sample Number: SE129375.002 Sample Matrix: Soil Sample Date: 07 Jul 2014 Sample Name: BH4-3
PAH (Polynuclear Aromatic Hydrocarbons) in Soil Method: AN420 (continued)				
Surrogates				
d5-nitrobenzene (Surrogate)	%	-	**100**	**98**
2-fluorobiphenyl (Surrogate)	%	-	**88**	**88**
d14-p-terphenyl (Surrogate)	%	-	**114**	**104**
OC Pesticides in Soil Method: AN400/AN420				
Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	-
Alpha BHC	mg/kg	0.1	<0.1	-
Lindane	mg/kg	0.1	<0.1	-
Heptachlor	mg/kg	0.1	<0.1	-
Aldrin	mg/kg	0.1	<0.1	-
Beta BHC	mg/kg	0.1	<0.1	-
Delta BHC	mg/kg	0.1	<0.1	-
Heptachlor epoxide	mg/kg	0.1	<0.1	-
o,p'-DDE	mg/kg	0.1	<0.1	-
Alpha Endosulfan	mg/kg	0.2	<0.2	-
Gamma Chlordane	mg/kg	0.1	<0.1	-
Alpha Chlordane	mg/kg	0.1	<0.1	-
trans-Nonachlor	mg/kg	0.1	<0.1	-
p,p'-DDE	mg/kg	0.1	<0.1	-
Dieldrin	mg/kg	0.2	<0.2	-
Endrin	mg/kg	0.2	<0.2	-
o,p'-DDD	mg/kg	0.1	<0.1	-
o,p'-DDT	mg/kg	0.1	<0.1	-
Beta Endosulfan	mg/kg	0.2	<0.2	-
p,p'-DDD	mg/kg	0.1	<0.1	-
p,p'-DDT	mg/kg	0.1	<0.1	-
Endosulfan sulphate	mg/kg	0.1	<0.1	-
Endrin Aldehyde	mg/kg	0.1	<0.1	-
Methoxychlor	mg/kg	0.1	<0.1	-
Endrin Ketone	mg/kg	0.1	<0.1	-
Isodrin	mg/kg	0.1	<0.1	-
Mirex	mg/kg	0.1	<0.1	-
Surrogates				
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**111**	-
OP Pesticides in Soil Method: AN400/AN420				
Dichlorvos	mg/kg	0.5	<0.5	-
Dimethoate	mg/kg	0.5	<0.5	-
Diazinon (Dimpylate)	mg/kg	0.5	<0.5	-
Fenitrothion	mg/kg	0.2	<0.2	-
Malathion	mg/kg	0.2	<0.2	-
Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	-
Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	-
Bromophos Ethyl	mg/kg	0.2	<0.2	-
Methidathion	mg/kg	0.5	<0.5	-
Ethion	mg/kg	0.2	<0.2	-
Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	-

Parameter	Units	LOR	Sample Number: SE129375.001 Sample Matrix: Soil Sample Date: 07 Jul 2014 Sample Name: BH4-1	Sample Number: SE129375.002 Sample Matrix: Soil Sample Date: 07 Jul 2014 Sample Name: BH4-3
OP Pesticides in Soil Method: AN400/AN420 (continued)				
Surrogates				
2-fluorobiphenyl (Surrogate)	%	-	**88**	-
d14-p-terphenyl (Surrogate)	%	-	**114**	-
PCBs in Soil Method: AN400/AN420				
Arochlor 1016	mg/kg	0.2	<0.2	-
Arochlor 1221	mg/kg	0.2	<0.2	-
Arochlor 1232	mg/kg	0.2	<0.2	-
Arochlor 1242	mg/kg	0.2	<0.2	-
Arochlor 1248	mg/kg	0.2	<0.2	-
Arochlor 1254	mg/kg	0.2	<0.2	-
Arochlor 1260	mg/kg	0.2	<0.2	-
Arochlor 1262	mg/kg	0.2	<0.2	-
Arochlor 1268	mg/kg	0.2	<0.2	-
Total PCBs (Arochlors)	mg/kg	1	<1	-
Surrogates				
Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	**111**	-
Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest Method: AN040/AN320				
Arsenic, As	mg/kg	3	**9**	**11**
Cadmium, Cd	mg/kg	0.3	**0.3**	**0.5**
Chromium, Cr	mg/kg	0.3	**9.4**	**19**
Copper, Cu	mg/kg	0.5	**30**	**18**
Lead, Pb	mg/kg	1	**45**	**46**
Nickel, Ni	mg/kg	0.5	**5.1**	**7.1**
Zinc, Zn	mg/kg	0.5	**110**	**170**
Mercury in Soil Method: AN312				
Mercury	mg/kg	0.01	**0.02**	**0.03**
Fibre Identification in soil Method: AN602				
FibreID				
Asbestos Detected	No unit	-	No	-
SemiQuant				
Estimated Fibres	%w/w	0.01	<0.01	-

Parameter	Units	LOR	Sample Number: SE129375.001 Sample Matrix: Soil Sample Date: 07 Jul 2014 Sample Name: BH4-1	Sample Number: SE129375.002 Sample Matrix: Soil Sample Date: 07 Jul 2014 Sample Name: BH4-3
Moisture Content Method: AN002				
% Moisture	%	0.5	**9.3**	**9.8**

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Mercury in Soil **Method: ME-(AU)-[ENV]AN312**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB060583	mg/kg	0.01	<0.01	0%	97%	96%
	LB060584	mg/kg	0.01	<0.01	0%	104%	94%

Moisture Content **Method: ME-(AU)-[ENV]AN002**

Parameter	QC Reference	Units	LOR	DUP %RPD
% Moisture	LB060623	%	0.5	7 - 14%

OC Pesticides in Soil **Method: ME-(AU)-[ENV]AN400/AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Hexachlorobenzene (HCB)	LB060450	mg/kg	0.1	<0.1	0%	NA
Alpha BHC	LB060450	mg/kg	0.1	<0.1	0%	NA
Lindane	LB060450	mg/kg	0.1	<0.1	0%	NA
Heptachlor	LB060450	mg/kg	0.1	<0.1	0%	76%
Aldrin	LB060450	mg/kg	0.1	<0.1	0%	74%
Beta BHC	LB060450	mg/kg	0.1	<0.1	0%	NA
Delta BHC	LB060450	mg/kg	0.1	<0.1	0%	70%
Heptachlor epoxide	LB060450	mg/kg	0.1	<0.1	0%	NA
o,p'-DDE	LB060450	mg/kg	0.1	<0.1	0%	NA
Alpha Endosulfan	LB060450	mg/kg	0.2	<0.2	0%	NA
Gamma Chlordane	LB060450	mg/kg	0.1	<0.1	0%	NA
Alpha Chlordane	LB060450	mg/kg	0.1	<0.1	0%	NA
trans-Nonachlor	LB060450	mg/kg	0.1	<0.1	0%	NA
p,p'-DDE	LB060450	mg/kg	0.1	<0.1	0%	NA
Dieldrin	LB060450	mg/kg	0.2	<0.2	0%	70%
Endrin	LB060450	mg/kg	0.2	<0.2	0%	73%
o,p'-DDD	LB060450	mg/kg	0.1	<0.1	0%	NA
o,p'-DDT	LB060450	mg/kg	0.1	<0.1	0%	NA
Beta Endosulfan	LB060450	mg/kg	0.2	<0.2	0%	NA
p,p'-DDD	LB060450	mg/kg	0.1	<0.1	0%	NA
p,p'-DDT	LB060450	mg/kg	0.1	<0.1	0%	65%
Endosulfan sulphate	LB060450	mg/kg	0.1	<0.1	0%	NA
Endrin Aldehyde	LB060450	mg/kg	0.1	<0.1	0%	NA
Methoxychlor	LB060450	mg/kg	0.1	<0.1	0%	NA
Endrin Ketone	LB060450	mg/kg	0.1	<0.1	0%	NA
Isodrin	LB060450	mg/kg	0.1	<0.1	0%	NA
Mirex	LB060450	mg/kg	0.1	<0.1	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB060450	%	-	111%	9%	111%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

OP Pesticides in Soil **Method: ME-(AU)-[ENV]AN400/AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Dichlorvos	LB060450	mg/kg	0.5	<0.5	0%	96%
Dimethoate	LB060450	mg/kg	0.5	<0.5	0%	NA
Diazinon (Dimpylate)	LB060450	mg/kg	0.5	<0.5	0%	95%
Fenitrothion	LB060450	mg/kg	0.2	<0.2	0%	NA
Malathion	LB060450	mg/kg	0.2	<0.2	0%	NA
Chlorpyrifos (Chlorpyrifos Ethyl)	LB060450	mg/kg	0.2	<0.2	0%	86%
Parathion-ethyl (Parathion)	LB060450	mg/kg	0.2	<0.2	0%	NA
Bromophos Ethyl	LB060450	mg/kg	0.2	<0.2	0%	NA
Methidathion	LB060450	mg/kg	0.5	<0.5	0%	NA
Ethion	LB060450	mg/kg	0.2	<0.2	0%	108%
Azinphos-methyl (Guthion)	LB060450	mg/kg	0.2	<0.2	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
2-fluorobiphenyl (Surrogate)	LB060450	%	-	112%	7%	94%
d14-p-terphenyl (Surrogate)	LB060450	%	-	122%	2%	104%

PAH (Polynuclear Aromatic Hydrocarbons) in Soil **Method: ME-(AU)-[ENV]AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Naphthalene	LB060450	mg/kg	0.1	<0.1	0%	89%
2-methylnaphthalene	LB060450	mg/kg	0.1	<0.1	0%	NA
1-methylnaphthalene	LB060450	mg/kg	0.1	<0.1	0%	NA
Acenaphthylene	LB060450	mg/kg	0.1	<0.1	0%	93%
Acenaphthene	LB060450	mg/kg	0.1	<0.1	0%	90%
Fluorene	LB060450	mg/kg	0.1	<0.1	0%	NA
Phenanthrene	LB060450	mg/kg	0.1	<0.1	0%	88%
Anthracene	LB060450	mg/kg	0.1	<0.1	0%	92%
Fluoranthene	LB060450	mg/kg	0.1	<0.1	0%	87%
Pyrene	LB060450	mg/kg	0.1	<0.1	0%	93%
Benzo(a)anthracene	LB060450	mg/kg	0.1	<0.1	0%	NA
Chrysene	LB060450	mg/kg	0.1	<0.1	0%	NA
Benzo(b&j)fluoranthene	LB060450	mg/kg	0.1	<0.1	0%	NA
Benzo(k)fluoranthene	LB060450	mg/kg	0.1	<0.1	0%	NA
Benzo(a)pyrene	LB060450	mg/kg	0.1	<0.1	0%	105%
Indeno(1,2,3-cd)pyrene	LB060450	mg/kg	0.1	<0.1	0%	NA
Dibenzo(a&h)anthracene	LB060450	mg/kg	0.1	<0.1	0%	NA
Benzo(ghi)perylene	LB060450	mg/kg	0.1	<0.1	0%	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=0*	LB060450	TEQ	0.2	<0.2	0%	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR*	LB060450	TEQ (mg/kg)	0.3	<0.3	0%	NA
Carcinogenic PAHs (as BaP TEQ)-assume results <LOR=LOR/2*	LB060450	TEQ (mg/kg)	0.2	<0.2	0%	NA
Total PAH	LB060450	mg/kg	0.8	<0.8	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
d5-nitrobenzene (Surrogate)	LB060450	%	-	114%	4%	104%
2-fluorobiphenyl (Surrogate)	LB060450	%	-	112%	7%	94%
d14-p-terphenyl (Surrogate)	LB060450	%	-	122%	2%	104%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

PCBs in Soil **Method: ME-(AU)-[ENV]AN400/AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Arochlor 1016	LB060450	mg/kg	0.2	<0.2	0%	NA
Arochlor 1221	LB060450	mg/kg	0.2	<0.2	0%	NA
Arochlor 1232	LB060450	mg/kg	0.2	<0.2	0%	NA
Arochlor 1242	LB060450	mg/kg	0.2	<0.2	0%	NA
Arochlor 1248	LB060450	mg/kg	0.2	<0.2	0%	NA
Arochlor 1254	LB060450	mg/kg	0.2	<0.2	0%	NA
Arochlor 1260	LB060450	mg/kg	0.2	<0.2	0%	121%
Arochlor 1262	LB060450	mg/kg	0.2	<0.2	0%	NA
Arochlor 1268	LB060450	mg/kg	0.2	<0.2	0%	NA
Total PCBs (Arochlors)	LB060450	mg/kg	1	<1	0%	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Tetrachloro-m-xylene (TCMX) (Surrogate)	LB060450	%	-	111%	9%	110%

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest **Method: ME-(AU)-[ENV]AN040/AN320**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB060574	mg/kg	3	<3	12 - 23%	103%	92%
	LB060575	mg/kg	3	<3	11 - 14%	105%	91%
Cadmium, Cd	LB060574	mg/kg	0.3	<0.3	0 - 5%	102%	85%
	LB060575	mg/kg	0.3	<0.3	0 - 16%	104%	92%
Chromium, Cr	LB060574	mg/kg	0.3	<0.3	3 - 44%	102%	97%
	LB060575	mg/kg	0.3	<0.3	1 - 14%	104%	99%
Copper, Cu	LB060574	mg/kg	0.5	<0.5	3 - 43%	104%	59%
	LB060575	mg/kg	0.5	<0.5	4 - 6%	105%	103%
Lead, Pb	LB060574	mg/kg	1	<1	3 - 7%	102%	98%
	LB060575	mg/kg	1	<1	1 - 17%	104%	82%
Nickel, Ni	LB060574	mg/kg	0.5	<0.5	2 - 11%	103%	94%
	LB060575	mg/kg	0.5	<0.5	0 - 5%	105%	93%
Zinc, Zn	LB060574	mg/kg	0.5	<0.5	1 - 11%	104%	103%
	LB060575	mg/kg	0.5	<0.5	1 - 5%	106%	119%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage.* Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

TRH (Total Recoverable Hydrocarbons) in Soil **Method: ME-(AU)-[ENV]AN403**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
TRH C10-C14	LB060450	mg/kg	20	<20	0%	103%
TRH C15-C28	LB060450	mg/kg	45	<45	0%	98%
TRH C29-C36	LB060450	mg/kg	45	<45	0%	83%
TRH C37-C40	LB060450	mg/kg	100	<100	0%	NA
TRH C10-C36 Total	LB060450	mg/kg	110	<110	0%	NA
TRH C10-C40 Total	LB060450	mg/kg	210	<210	0%	NA

TRH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
TRH >C10-C16 (F2)	LB060450	mg/kg	25	<25	0%	100%
TRH >C16-C34 (F3)	LB060450	mg/kg	90	<90	0%	98%
TRH >C34-C40 (F4)	LB060450	mg/kg	120	<120	0%	80%

VOC's in Soil **Method: ME-(AU)-[ENV]AN433/AN434**

Fumigants

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
2,2-dichloropropane	LB060442	mg/kg	0.1	<0.1	0%	NA
1,2-dichloropropane	LB060442	mg/kg	0.1	<0.1	0%	NA
cis-1,3-dichloropropene	LB060442	mg/kg	0.1	<0.1	0%	NA
trans-1,3-dichloropropene	LB060442	mg/kg	0.1	<0.1	0%	NA
1,2-dibromoethane (EDB)	LB060442	mg/kg	0.1	<0.1	0%	NA

Halogenated Aliphatics

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Dichlorodifluoromethane (CFC-12)	LB060442	mg/kg	1	<1	0%	NA
Chloromethane	LB060442	mg/kg	1	<1	0%	NA
Vinyl chloride (Chloroethene)	LB060442	mg/kg	0.1	<0.1	0%	NA
Bromomethane	LB060442	mg/kg	1	<1	0%	NA
Chloroethane	LB060442	mg/kg	1	<1	0%	NA
Trichlorofluoromethane	LB060442	mg/kg	1	<1	0%	NA
Iodomethane	LB060442	mg/kg	5	<5	0%	NA
1,1-dichloroethene	LB060442	mg/kg	0.1	<0.1	0%	77%
Dichloromethane (Methylene chloride)	LB060442	mg/kg	0.5	<0.5	0%	NA
Allyl chloride	LB060442	mg/kg	0.1	<0.1	0%	NA
trans-1,2-dichloroethene	LB060442	mg/kg	0.1	<0.1	0%	NA
1,1-dichloroethane	LB060442	mg/kg	0.1	<0.1	0%	NA
cis-1,2-dichloroethene	LB060442	mg/kg	0.1	<0.1	0%	NA
Bromochloromethane	LB060442	mg/kg	0.1	<0.1	0%	NA
1,2-dichloroethane	LB060442	mg/kg	0.1	<0.1	0%	114%
1,1,1-trichloroethane	LB060442	mg/kg	0.1	<0.1	0%	NA
1,1-dichloropropene	LB060442	mg/kg	0.1	<0.1	0%	NA
Carbon tetrachloride	LB060442	mg/kg	0.1	<0.1	0%	NA
Dibromomethane	LB060442	mg/kg	0.1	<0.1	0%	NA
Trichloroethene (Trichloroethylene -TCE)	LB060442	mg/kg	0.1	<0.1	0%	88%
1,1,2-trichloroethane	LB060442	mg/kg	0.1	<0.1	0%	NA
1,3-dichloropropane	LB060442	mg/kg	0.1	<0.1	0%	NA
Tetrachloroethene (Perchloroethylene,PCE)	LB060442	mg/kg	0.1	<0.1	0%	NA
1,1,1,2-tetrachloroethane	LB060442	mg/kg	0.1	<0.1	0%	NA
cis-1,4-dichloro-2-butene	LB060442	mg/kg	1	<1	0%	NA
1,1,2,2-tetrachloroethane	LB060442	mg/kg	0.1	<0.1	0%	NA
1,2,3-trichloropropane	LB060442	mg/kg	0.1	<0.1	0%	NA
trans-1,4-dichloro-2-butene	LB060442	mg/kg	1	<1	0%	NA
1,2-dibromo-3-chloropropane	LB060442	mg/kg	0.1	<0.1	0%	NA
Hexachlorobutadiene	LB060442	mg/kg	0.1	<0.1	0%	NA

Halogenated Aromatics

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

VOC's in Soil Method: ME-(AU)-[ENV]AN433/AN434 (continued)

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Chlorobenzene	LB060442	mg/kg	0.1	<0.1	0%	126%
Bromobenzene	LB060442	mg/kg	0.1	<0.1	0%	NA
2-chlorotoluene	LB060442	mg/kg	0.1	<0.1	0%	NA
4-chlorotoluene	LB060442	mg/kg	0.1	<0.1	0%	NA
1,3-dichlorobenzene	LB060442	mg/kg	0.1	<0.1	0%	NA
1,4-dichlorobenzene	LB060442	mg/kg	0.1	<0.1	0%	NA
1,2-dichlorobenzene	LB060442	mg/kg	0.1	<0.1	0%	NA
1,2,4-trichlorobenzene	LB060442	mg/kg	0.1	<0.1	0%	NA
1,2,3-trichlorobenzene	LB060442	mg/kg	0.1	<0.1	0%	NA

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Benzene	LB060442	mg/kg	0.1	<0.1	0%	87%
Toluene	LB060442	mg/kg	0.1	<0.1	0%	93%
Ethylbenzene	LB060442	mg/kg	0.1	<0.1	0%	98%
m/p-xylene	LB060442	mg/kg	0.2	<0.2	0%	95%
Styrene (Vinyl benzene)	LB060442	mg/kg	0.1	<0.1	0%	NA
o-xylene	LB060442	mg/kg	0.1	<0.1	0%	97%
Isopropylbenzene (Cumene)	LB060442	mg/kg	0.1	<0.1	0%	NA
n-propylbenzene	LB060442	mg/kg	0.1	<0.1	0%	NA
1,3,5-trimethylbenzene	LB060442	mg/kg	0.1	<0.1	0%	NA
tert-butylbenzene	LB060442	mg/kg	0.1	<0.1	0%	NA
1,2,4-trimethylbenzene	LB060442	mg/kg	0.1	<0.1	0%	NA
sec-butylbenzene	LB060442	mg/kg	0.1	<0.1	0%	NA
p-isopropyltoluene	LB060442	mg/kg	0.1	<0.1	0%	NA
n-butylbenzene	LB060442	mg/kg	0.1	<0.1	0%	NA

Nitrogenous Compounds

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Acrylonitrile	LB060442	mg/kg	0.1	<0.1	0%	NA
2-nitropropane	LB060442	mg/kg	10	<10	0%	NA

Oxygenated Compounds

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Acetone (2-propanone)	LB060442	mg/kg	10	<10	0%	NA
MtBE (Methyl-tert-butyl ether)	LB060442	mg/kg	0.1	<0.1	0%	NA
Vinyl acetate	LB060442	mg/kg	10	<10	0%	NA
MEK (2-butanone)	LB060442	mg/kg	10	<10	0%	NA
MIBK (4-methyl-2-pentanone)	LB060442	mg/kg	1	<1	0%	NA
2-hexanone (MBK)	LB060442	mg/kg	5	<5	0%	NA

Polycyclic VOCs

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Naphthalene	LB060442	mg/kg	0.1	<0.1	0%	NA

Sulphonated Compounds

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Carbon disulfide	LB060442	mg/kg	0.5	<0.5	0%	NA

Surrogates

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

VOC's in Soil Method: ME-(AU)-[ENV]AN433/AN434 (continued)

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Dibromofluoromethane (Surrogate)	LB060442	%	-	101%	3 - 6%	105%
d4-1,2-dichloroethane (Surrogate)	LB060442	%	-	127%	3 - 7%	113%
d8-toluene (Surrogate)	LB060442	%	-	101%	4 - 9%	102%
Bromofluorobenzene (Surrogate)	LB060442	%	-	107%	1 - 7%	105%

Totals

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Total Xylenes*	LB060442	mg/kg	0.3	<0.3	0%	NA
Total BTEX*	LB060442	mg/kg	0.6	<0.6	0%	NA

Trihalomethanes

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Chloroform	LB060442	mg/kg	0.1	<0.1	0%	74%
Bromodichloromethane	LB060442	mg/kg	0.1	<0.1	0%	NA
Chlorodibromomethane	LB060442	mg/kg	0.1	<0.1	0%	NA
Bromoform	LB060442	mg/kg	0.1	<0.1	0%	NA

Volatile Petroleum Hydrocarbons in Soil Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
TRH C6-C10	LB060442	mg/kg	25	<25	0%	98%
TRH C6-C9	LB060442	mg/kg	20	<20	0%	97%

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Dibromofluoromethane (Surrogate)	LB060442	%	-	93%	2 - 6%	99%
d4-1,2-dichloroethane (Surrogate)	LB060442	%	-	106%	3 - 5%	114%
d8-toluene (Surrogate)	LB060442	%	-	98%	4 - 7%	113%
Bromofluorobenzene (Surrogate)	LB060442	%	-	76%	1 - 11%	95%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Benzene (F0)	LB060442	mg/kg	0.1	<0.1	0%	NA
TRH C6-C10 minus BTEX (F1)	LB060442	mg/kg	25	<25	0%	107%

METHOD	METHODOLOGY SUMMARY
AN002	The test is carried out by drying (at either 40°C or 105°C) a known mass of sample in a weighed evaporating basin. After fully dry the sample is re-weighed. Samples such as sludge and sediment having high percentages of moisture will take some time in a drying oven for complete removal of water.
AN040	A portion of sample is digested with Nitric acid to decompose organic matter and Hydrochloric acid to complete the digestion of metals and then filtered for analsysis by ASS or ICP as per USEPA Method 200.8.
AN040/AN320	A portion of sample is digested with nitric acid to decompose organic matter and hydrochloric acid to complete the digestion of metals. The digest is then analysed by ICP OES with metals results reported on the dried sample basis. Based on USEPA method 200.8 and 6010C.
AN088	Orbital rolling for Organic pollutants are extracted from soil/sediment by transferring an appropriate mass of sample to a clear soil jar and extracting with 1:1 Dichloromethane/Acetone. Orbital Rolling method is intended for the extraction of semi-volatile organic compounds from soil/sediment samples, and is based somewhat on USEPA method 3570 (Micro Organic extraction and sample preparation). Method 3700.
AN312	Mercury by Cold Vapour AAS in Soils: After digestion with nitric acid, hydrogen peroxide and hydrochloric acid, mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500
AN400	OC and OP Pesticides by GC-ECD: The determination of organochlorine (OC) and organophosphorus (OP) pesticides and polychlorinated biphenyls (PCBs) in soils, sludges and groundwater. (Based on USEPA methods 3510, 3550, 8140 and 8080.)
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is not corrected for Naphthalene.
AN403	Additionally, the volatile C6-C9 fraction may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN420	SVOC Compounds: Semi-Volatile Organic Compounds (SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN433/AN434/AN410	VOCs and C6-C9/C6-C10 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	This analysis is not covered by the scope of accreditation.	QFH	QC result is above the upper tolerance
**	Indicative data, theoretical holding time exceeded.	QFL	QC result is below the lower tolerance
^	Performed by outside laboratory.	-	The sample was not analysed for this analyte
		NVL	Not Validated

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au.pv.sgsv3/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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STATEMENT OF QA/QC PERFORMANCE

SE129375 R0

CLIENT DETAILS

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Order Number	**E22232**
Samples	2

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SGS Reference	SE129375 R0
Report Number	0000086920
Date Reported	14 Jul 2014

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS Environmental Services' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met with the exception of the following:

Duplicate	Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest	2 items
Matrix Spike	Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest	1 item

SAMPLE SUMMARY

Sample counts by matrix	2 Soils	Type of documentation received	COC
Date documentation received	7/7/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3.6°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE129375 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Fibre Identification in soil

Method: ME-(AU)-[ENV]AN602

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4-1	SE129375.001	LB060633	07 Jul 2014	07 Jul 2014	07 Jul 2015	11 Jul 2014	07 Jul 2015	14 Jul 2014

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4-1	SE129375.001	LB060583	07 Jul 2014	07 Jul 2014	04 Aug 2014	10 Jul 2014	04 Aug 2014	14 Jul 2014
BH4-3	SE129375.002	LB060584	07 Jul 2014	07 Jul 2014	04 Aug 2014	10 Jul 2014	04 Aug 2014	14 Jul 2014

Moisture Content

Method: ME-(AU)-[ENV]AN002

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4-1	SE129375.001	LB060623	07 Jul 2014	07 Jul 2014	21 Jul 2014	11 Jul 2014	16 Jul 2014	14 Jul 2014
BH4-3	SE129375.002	LB060623	07 Jul 2014	07 Jul 2014	21 Jul 2014	11 Jul 2014	16 Jul 2014	14 Jul 2014

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4-1	SE129375.001	LB060450	07 Jul 2014	07 Jul 2014	21 Jul 2014	08 Jul 2014	17 Aug 2014	14 Jul 2014
BH4-3	SE129375.002	LB060450	07 Jul 2014	07 Jul 2014	21 Jul 2014	08 Jul 2014	17 Aug 2014	14 Jul 2014

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4-1	SE129375.001	LB060450	07 Jul 2014	07 Jul 2014	21 Jul 2014	08 Jul 2014	17 Aug 2014	14 Jul 2014
BH4-3	SE129375.002	LB060450	07 Jul 2014	07 Jul 2014	21 Jul 2014	08 Jul 2014	17 Aug 2014	14 Jul 2014

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4-1	SE129375.001	LB060450	07 Jul 2014	07 Jul 2014	21 Jul 2014	08 Jul 2014	17 Aug 2014	14 Jul 2014
BH4-3	SE129375.002	LB060450	07 Jul 2014	07 Jul 2014	21 Jul 2014	08 Jul 2014	17 Aug 2014	14 Jul 2014

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4-1	SE129375.001	LB060450	07 Jul 2014	07 Jul 2014	21 Jul 2014	08 Jul 2014	17 Aug 2014	14 Jul 2014
BH4-3	SE129375.002	LB060450	07 Jul 2014	07 Jul 2014	21 Jul 2014	08 Jul 2014	17 Aug 2014	14 Jul 2014

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4-1	SE129375.001	LB060574	07 Jul 2014	07 Jul 2014	03 Jan 2015	10 Jul 2014	03 Jan 2015	14 Jul 2014
BH4-3	SE129375.002	LB060575	07 Jul 2014	07 Jul 2014	03 Jan 2015	10 Jul 2014	03 Jan 2015	14 Jul 2014

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4-1	SE129375.001	LB060450	07 Jul 2014	07 Jul 2014	21 Jul 2014	08 Jul 2014	17 Aug 2014	14 Jul 2014
BH4-3	SE129375.002	LB060450	07 Jul 2014	07 Jul 2014	21 Jul 2014	08 Jul 2014	17 Aug 2014	14 Jul 2014

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4-1	SE129375.001	LB060442	07 Jul 2014	07 Jul 2014	21 Jul 2014	08 Jul 2014	17 Aug 2014	14 Jul 2014
BH4-3	SE129375.002	LB060442	07 Jul 2014	07 Jul 2014	21 Jul 2014	08 Jul 2014	17 Aug 2014	14 Jul 2014

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
BH4-1	SE129375.001	LB060442	07 Jul 2014	07 Jul 2014	21 Jul 2014	08 Jul 2014	17 Aug 2014	14 Jul 2014
BH4-3	SE129375.002	LB060442	07 Jul 2014	07 Jul 2014	21 Jul 2014	08 Jul 2014	17 Aug 2014	14 Jul 2014

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	111

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	88
d14-p-terphenyl (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	114

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	88
	BH4-3	SE129375.002	%	60 - 130%	88
d14-p-terphenyl (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	114
	BH4-3	SE129375.002	%	60 - 130%	104
d5-nitrobenzene (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	100
	BH4-3	SE129375.002	%	60 - 130%	98

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Tetrachloro-m-xylene (TCMX) (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	111

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	92
	BH4-3	SE129375.002	%	60 - 130%	80
d4-1,2-dichloroethane (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	104
	BH4-3	SE129375.002	%	60 - 130%	99
d8-toluene (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	87
	BH4-3	SE129375.002	%	60 - 130%	97
Dibromofluoromethane (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	80
	BH4-3	SE129375.002	%	60 - 130%	83

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	74
	BH4-3	SE129375.002	%	60 - 130%	80
d4-1,2-dichloroethane (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	100
	BH4-3	SE129375.002	%	60 - 130%	99
d8-toluene (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	97
	BH4-3	SE129375.002	%	60 - 130%	97
Dibromofluoromethane (Surrogate)	BH4-1	SE129375.001	%	60 - 130%	83
	BH4-3	SE129375.002	%	60 - 130%	83

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result
LB060583.001	Mercury	mg/kg	0.01	<0.01
LB060584.001	Mercury	mg/kg	0.01	<0.01

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB060450.001		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1
		Alpha BHC	mg/kg	0.1	<0.1
		Lindane	mg/kg	0.1	<0.1
		Heptachlor	mg/kg	0.1	<0.1
		Aldrin	mg/kg	0.1	<0.1
		Beta BHC	mg/kg	0.1	<0.1
		Delta BHC	mg/kg	0.1	<0.1
		Heptachlor epoxide	mg/kg	0.1	<0.1
		Alpha Endosulfan	mg/kg	0.2	<0.2
		Gamma Chlordane	mg/kg	0.1	<0.1
		Alpha Chlordane	mg/kg	0.1	<0.1
		p,p'-DDE	mg/kg	0.1	<0.1
		Dieldrin	mg/kg	0.2	<0.2
		Endrin	mg/kg	0.2	<0.2
		Beta Endosulfan	mg/kg	0.2	<0.2
		p,p'-DDD	mg/kg	0.1	<0.1
		p,p'-DDT	mg/kg	0.1	<0.1
		Endosulfan sulphate	mg/kg	0.1	<0.1
		Endrin Aldehyde	mg/kg	0.1	<0.1
		Methoxychlor	mg/kg	0.1	<0.1
		Endrin Ketone	mg/kg	0.1	<0.1
		Isodrin	mg/kg	0.1	<0.1
		Mirex	mg/kg	0.1	<0.1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	111

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB060450.001		Dichlorvos	mg/kg	0.5	<0.5
		Dimethoate	mg/kg	0.5	<0.5
		Diazinon (Dimpylate)	mg/kg	0.5	<0.5
		Fenitrothion	mg/kg	0.2	<0.2
		Malathion	mg/kg	0.2	<0.2
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2
		Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2
		Bromophos Ethyl	mg/kg	0.2	<0.2
		Methidathion	mg/kg	0.5	<0.5
		Ethion	mg/kg	0.2	<0.2
		Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2
	Surrogates	2-fluorobiphenyl (Surrogate)	%	-	112
		d14-p-terphenyl (Surrogate)	%	-	122

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number	Parameter	Units	LOR	Result
LB060450.001	Naphthalene	mg/kg	0.1	<0.1
	2-methylnaphthalene	mg/kg	0.1	<0.1
	1-methylnaphthalene	mg/kg	0.1	<0.1
	Acenaphthylene	mg/kg	0.1	<0.1
	Acenaphthene	mg/kg	0.1	<0.1
	Fluorene	mg/kg	0.1	<0.1
	Phenanthrene	mg/kg	0.1	<0.1
	Anthracene	mg/kg	0.1	<0.1
	Fluoranthene	mg/kg	0.1	<0.1
	Pyrene	mg/kg	0.1	<0.1
	Benzo(a)anthracene	mg/kg	0.1	<0.1
	Chrysene	mg/kg	0.1	<0.1
	Benzo(a)pyrene	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB060450.001		Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1
		Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1
		Benzo(ghi)perylene	mg/kg	0.1	<0.1
		Total PAH	mg/kg	0.8	<0.8
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	114
		2-fluorobiphenyl (Surrogate)	%	-	112
		d14-p-terphenyl (Surrogate)	%	-	122

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result
LB060450.001		Arochlor 1016	mg/kg	0.2	<0.2
		Arochlor 1221	mg/kg	0.2	<0.2
		Arochlor 1232	mg/kg	0.2	<0.2
		Arochlor 1242	mg/kg	0.2	<0.2
		Arochlor 1248	mg/kg	0.2	<0.2
		Arochlor 1254	mg/kg	0.2	<0.2
		Arochlor 1260	mg/kg	0.2	<0.2
		Arochlor 1262	mg/kg	0.2	<0.2
		Arochlor 1268	mg/kg	0.2	<0.2
		Total PCBs (Arochlors)	mg/kg	1	<1
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	%	-	111

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result
LB060574.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5
LB060575.001	Arsenic, As	mg/kg	3	<3
	Cadmium, Cd	mg/kg	0.3	<0.3
	Chromium, Cr	mg/kg	0.3	<0.3
	Copper, Cu	mg/kg	0.5	<0.5
	Lead, Pb	mg/kg	1	<1
	Nickel, Ni	mg/kg	0.5	<0.5
	Zinc, Zn	mg/kg	0.5	<0.5

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB060450.001	TRH C10-C14	mg/kg	20	<20
	TRH C15-C28	mg/kg	45	<45
	TRH C29-C36	mg/kg	45	<45
	TRH C37-C40	mg/kg	100	<100
	TRH C10-C36 Total	mg/kg	110	<110

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB060442.001	Fumigants	2,2-dichloropropane	mg/kg	0.1	<0.1
		1,2-dichloropropane	mg/kg	0.1	<0.1
		cis-1,3-dichloropropene	mg/kg	0.1	<0.1
		trans-1,3-dichloropropene	mg/kg	0.1	<0.1
		1,2-dibromoethane (EDB)	mg/kg	0.1	<0.1
	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1
		Chloromethane	mg/kg	1	<1
		Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1
		Bromomethane	mg/kg	1	<1
		Chloroethane	mg/kg	1	<1
		Trichlorofluoromethane	mg/kg	1	<1
		Iodomethane	mg/kg	5	<5
		1,1-dichloroethene	mg/kg	0.1	<0.1
		Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB060442.001	Halogenated Aliphatics	Allyl chloride	mg/kg	0.1	<0.1
		trans-1,2-dichloroethene	mg/kg	0.1	<0.1
		1,1-dichloroethane	mg/kg	0.1	<0.1
		cis-1,2-dichloroethene	mg/kg	0.1	<0.1
		Bromochloromethane	mg/kg	0.1	<0.1
		1,2-dichloroethane	mg/kg	0.1	<0.1
		1,1,1-trichloroethane	mg/kg	0.1	<0.1
		1,1-dichloropropene	mg/kg	0.1	<0.1
		Carbon tetrachloride	mg/kg	0.1	<0.1
		Dibromomethane	mg/kg	0.1	<0.1
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1
		1,1,2-trichloroethane	mg/kg	0.1	<0.1
		1,3-dichloropropane	mg/kg	0.1	<0.1
		Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1
		1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1
		cis-1,4-dichloro-2-butene	mg/kg	1	<1
		1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1
		1,2,3-trichloropropane	mg/kg	0.1	<0.1
		trans-1,4-dichloro-2-butene	mg/kg	1	<1
		1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1
		Hexachlorobutadiene	mg/kg	0.1	<0.1
	Halogenated Aromatics	Chlorobenzene	mg/kg	0.1	<0.1
		Bromobenzene	mg/kg	0.1	<0.1
		2-chlorotoluene	mg/kg	0.1	<0.1
		4-chlorotoluene	mg/kg	0.1	<0.1
		1,3-dichlorobenzene	mg/kg	0.1	<0.1
		1,4-dichlorobenzene	mg/kg	0.1	<0.1
		1,2-dichlorobenzene	mg/kg	0.1	<0.1
		1,2,4-trichlorobenzene	mg/kg	0.1	<0.1
		1,2,3-trichlorobenzene	mg/kg	0.1	<0.1
	Monocyclic Aromatic Hydrocarbons	Benzene	mg/kg	0.1	<0.1
		Toluene	mg/kg	0.1	<0.1
		Ethylbenzene	mg/kg	0.1	<0.1
		m/p-xylene	mg/kg	0.2	<0.2
		Styrene (Vinyl benzene)	mg/kg	0.1	<0.1
		o-xylene	mg/kg	0.1	<0.1
		Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1
		n-propylbenzene	mg/kg	0.1	<0.1
		1,3,5-trimethylbenzene	mg/kg	0.1	<0.1
		tert-butylbenzene	mg/kg	0.1	<0.1
		1,2,4-trimethylbenzene	mg/kg	0.1	<0.1
		sec-butylbenzene	mg/kg	0.1	<0.1
		p-isopropyltoluene	mg/kg	0.1	<0.1
		n-butylbenzene	mg/kg	0.1	<0.1
	Nitrogenous Compounds	Acrylonitrile	mg/kg	0.1	<0.1
		2-nitropropane	mg/kg	10	<10
	Oxygenated Compounds	Acetone (2-propanone)	mg/kg	10	<10
		MtBE (Methyl-tert-butyl ether)	mg/kg	0.1	<0.1
		Vinyl acetate	mg/kg	10	<10
		MEK (2-butanone)	mg/kg	10	<10
		MIBK (4-methyl-2-pentanone)	mg/kg	1	<1
		2-hexanone (MBK)	mg/kg	5	<5
	Polycyclic VOCs	Naphthalene	mg/kg	0.1	<0.1
	Sulphonated	Carbon disulfide	mg/kg	0.5	<0.5
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	101
		d4-1,2-dichloroethane (Surrogate)	%	-	127
		d8-toluene (Surrogate)	%	-	101
		Bromofluorobenzene (Surrogate)	%	-	107
	Totals	Total BTEX*	mg/kg	0.6	<0.6
	Trihalomethanes	Chloroform	mg/kg	0.1	<0.1
		Bromodichloromethane	mg/kg	0.1	<0.1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB060442.001	Trihalomethanes	Chlorodibromomethane	mg/kg	0.1	<0.1
		Bromoform	mg/kg	0.1	<0.1

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result
LB060442.001		TRH C6-C9	mg/kg	20	<20
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	93
		d4-1,2-dichloroethane (Surrogate)	%	-	106
		d8-toluene (Surrogate)	%	-	98

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129371.001	LB060583.014	Mercury	mg/kg	0.01	0.01	0.02	200	0
SE129375.001	LB060583.024	Mercury	mg/kg	0.01	0.02	0.03	200	0
SE129380.009	LB060584.014	Mercury	mg/kg	0.01	0.0317851627	0.0326562581	185	0
SE129380.018	LB060584.024	Mercury	mg/kg	0.01	0.0356055980	0.0307045695	181	0

Moisture Content

Method: ME-(AU)-[ENV]AN002

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129370.003	LB060623.011	% Moisture	%w/w	0.5	11	11	39	2
SE129374.006	LB060623.022	% Moisture	%	0.5	12.9144851657	12.0481927710	38	7
SE129375.002	LB060623.026	% Moisture	%	0.5	9.8	11	39	14

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129371.001	LB060450.004		Hexachlorobenzene (HCB)	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Lindane	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor	mg/kg	0.1	<0.1	<0.1	200	0
			Aldrin	mg/kg	0.1	<0.1	<0.1	200	0
			Beta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Delta BHC	mg/kg	0.1	<0.1	<0.1	200	0
			Heptachlor epoxide	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			Gamma Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			Alpha Chlordane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-Nonachlor	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDE	mg/kg	0.1	<0.1	<0.1	200	0
			Dieldrin	mg/kg	0.2	<0.2	<0.2	200	0
			Endrin	mg/kg	0.2	<0.2	<0.2	200	0
			o,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			o,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Beta Endosulfan	mg/kg	0.2	<0.2	<0.2	200	0
			p,p'-DDD	mg/kg	0.1	<0.1	<0.1	200	0
			p,p'-DDT	mg/kg	0.1	<0.1	<0.1	200	0
			Endosulfan sulphate	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Aldehyde	mg/kg	0.1	<0.1	<0.1	200	0
			Methoxychlor	mg/kg	0.1	<0.1	<0.1	200	0
			Endrin Ketone	mg/kg	0.1	<0.1	<0.1	200	0
			Isodrin	mg/kg	0.1	<0.1	<0.1	200	0
			Mirex	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.17	0.19	30	9

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129371.001	LB060450.004		Dichlorvos	mg/kg	0.5	<0.5	<0.5	200	0
			Dimethoate	mg/kg	0.5	<0.5	<0.5	200	0
			Diazinon (Dimpylate)	mg/kg	0.5	<0.5	<0.5	200	0
			Fenitrothion	mg/kg	0.2	<0.2	<0.2	200	0
			Malathion	mg/kg	0.2	<0.2	<0.2	200	0
			Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	<0.2	<0.2	200	0
			Parathion-ethyl (Parathion)	mg/kg	0.2	<0.2	<0.2	200	0
			Bromophos Ethyl	mg/kg	0.2	<0.2	<0.2	200	0
			Methidathion	mg/kg	0.5	<0.5	<0.5	200	0
			Ethion	mg/kg	0.2	<0.2	<0.2	200	0
			Azinphos-methyl (Guthion)	mg/kg	0.2	<0.2	<0.2	200	0
		Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	7
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Original	Duplicate	Parameter	Units	LOR

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129371.001	LB060450.004		Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			2-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthylene	mg/kg	0.1	<0.1	<0.1	200	0
			Acenaphthene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluorene	mg/kg	0.1	<0.1	<0.1	200	0
			Phenanthrene	mg/kg	0.1	<0.1	<0.1	200	0
			Anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Chrysene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	mg/kg	0.1	<0.1	<0.1	200	0
			Dibenzo(a&h)anthracene	mg/kg	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	mg/kg	0.1	<0.1	<0.1	200	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	<0.2	<0.2	200	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.3	<0.3	<0.3	134	0
			Carcinogenic PAHs (as BaP TEQ)-assume results	TEQ (mg/kg)	0.2	<0.2	<0.2	175	0
			Total PAH	mg/kg	0.8	<0.8	<0.8	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	30	4
			2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.4	30	7
			d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	30	2

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129371.001	LB060450.004		Arochlor 1016	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1221	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1232	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1242	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1248	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1254	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1260	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1262	mg/kg	0.2	<0.2	<0.2	200	0
			Arochlor 1268	mg/kg	0.2	<0.2	<0.2	200	0
			Total PCBs (Arochlors)	mg/kg	1	<1	<1	200	0
		Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0	0	30	9

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129371.001	LB060574.014	Arsenic, As	mg/kg	3	6	7	46	23
		Cadmium, Cd	mg/kg	0.3	<0.3	<0.3	162	0
		Chromium, Cr	mg/kg	0.3	19	30	32	44 ②
		Copper, Cu	mg/kg	0.5	6.0	5.8	39	3
		Lead, Pb	mg/kg	1	28	30	33	7
		Nickel, Ni	mg/kg	0.5	6.2	6.3	38	2
		Zinc, Zn	mg/kg	0.5	25	25	38	1
SE129375.001	LB060574.024	Arsenic, As	mg/kg	3	9	11	40	12
		Cadmium, Cd	mg/kg	0.3	0.3	0.3	122	5
		Chromium, Cr	mg/kg	0.3	9.4	9.7	35	3
		Copper, Cu	mg/kg	0.5	30	47	31	43 ②
		Lead, Pb	mg/kg	1	45	47	32	3
		Nickel, Ni	mg/kg	0.5	5.1	5.7	39	11
		Zinc, Zn	mg/kg	0.5	110	120	32	11
SE129380.009	LB060575.014	Arsenic, As	mg/kg	3	4.00299705644	.6262360890	53	14
		Cadmium, Cd	mg/kg	0.3	0.27612247790	.3537087970	125	16
		Chromium, Cr	mg/kg	0.3	24.336240299	27.859618441	32	14
		Copper, Cu	mg/kg	0.5	3.81866470433	.9696330153	43	4
		Lead, Pb	mg/kg	1	26.597989028	31.405604133	33	17
		Nickel, Ni	mg/kg	0.5	2.38678084022	.3972350291	51	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest (continued)

Method: ME-(AU)-[ENV]AN040/AN320

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129380.009	LB060575.014	Zinc, Zn	mg/kg	0.5	24.18003478725.3443057763		38	5
SE129380.018	LB060575.024	Arsenic, As	mg/kg	3	3.65373904873.2580384654		59	11
		Cadmium, Cd	mg/kg	0.3	0.28000087950.1978315564		156	0
		Chromium, Cr	mg/kg	0.3	9.00889176329.1230644580		36	1
		Copper, Cu	mg/kg	0.5	13.73382217504.6422306385		34	6
		Lead, Pb	mg/kg	1	30.2904361542 9.3939342205		31	1
		Nickel, Ni	mg/kg	0.5	2.36629272732.4833048073		51	5
		Zinc, Zn	mg/kg	0.5	35.49364048735.9785926294		32	1

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129371.001	LB060450.004		TRH C10-C14	mg/kg	20	<20	<20	200	0
			TRH C15-C28	mg/kg	45	<45	<45	200	0
			TRH C29-C36	mg/kg	45	<45	<45	200	0
			TRH C37-C40	mg/kg	100	<100	<100	200	0
			TRH C10-C36 Total	mg/kg	110	<110	<110	200	0
			TRH C10-C40 Total	mg/kg	210	<210	<210	200	0
		TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	<25	<25	200	0
			TRH >C16-C34 (F3)	mg/kg	90	<90	<90	200	0
			TRH >C34-C40 (F4)	mg/kg	120	<120	<120	200	0

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129369.002	LB060442.015	Fumigants	2,2-dichloropropane	mg/kg	0.1	<0.1	<0.1	200	0
			1,2-dichloropropane	mg/kg	0.1	<0.1	<0.1	200	0
			cis-1,3-dichloropropene	mg/kg	0.1	<0.1	<0.1	200	0
			trans-1,3-dichloropropene	mg/kg	0.1	<0.1	<0.1	200	0
			1,2-dibromoethane (EDB)	mg/kg	0.1	<0.1	<0.1	200	0
		Halogenated	Dichlorodifluoromethane (CFC-12)	mg/kg	1	<1	<1	200	0
		Aliphatics	Chloromethane	mg/kg	1	<1	<1	200	0
			Vinyl chloride (Chloroethene)	mg/kg	0.1	<0.1	<0.1	200	0
			Bromomethane	mg/kg	1	<1	<1	200	0
			Chloroethane	mg/kg	1	<1	<1	200	0
			Trichlorofluoromethane	mg/kg	1	<1	<1	200	0
			Iodomethane	mg/kg	5	<5	<5	200	0
			1,1-dichloroethene	mg/kg	0.1	<0.1	<0.1	200	0
			Dichloromethane (Methylene chloride)	mg/kg	0.5	<0.5	<0.5	200	0
			Allyl chloride	mg/kg	0.1	<0.1	<0.1	200	0
			trans-1,2-dichloroethene	mg/kg	0.1	<0.1	<0.1	200	0
			1,1-dichloroethane	mg/kg	0.1	<0.1	<0.1	200	0
			cis-1,2-dichloroethene	mg/kg	0.1	<0.1	<0.1	200	0
			Bromochloromethane	mg/kg	0.1	<0.1	<0.1	200	0
			1,2-dichloroethane	mg/kg	0.1	<0.1	<0.1	200	0
			1,1,1-trichloroethane	mg/kg	0.1	<0.1	<0.1	200	0
			1,1-dichloropropene	mg/kg	0.1	<0.1	<0.1	200	0
			Carbon tetrachloride	mg/kg	0.1	<0.1	<0.1	200	0
			Dibromomethane	mg/kg	0.1	<0.1	<0.1	200	0
			Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	<0.1	<0.1	200	0
			1,1,2-trichloroethane	mg/kg	0.1	<0.1	<0.1	200	0
			1,3-dichloropropane	mg/kg	0.1	<0.1	<0.1	200	0
			Tetrachloroethene (Perchloroethylene,PCE)	mg/kg	0.1	<0.1	<0.1	200	0
			1,1,1,2-tetrachloroethane	mg/kg	0.1	<0.1	<0.1	200	0
			cis-1,4-dichloro-2-butene	mg/kg	1	<1	<1	200	0
			1,1,2,2-tetrachloroethane	mg/kg	0.1	<0.1	<0.1	200	0
			1,2,3-trichloropropane	mg/kg	0.1	<0.1	<0.1	200	0
			trans-1,4-dichloro-2-butene	mg/kg	1	<1	<1	200	0
			1,2-dibromo-3-chloropropane	mg/kg	0.1	<0.1	<0.1	200	0
			Hexachlorobutadiene	mg/kg	0.1	<0.1	<0.1	200	0
		Halogenated	Chlorobenzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatics	Bromobenzene	mg/kg	0.1	<0.1	<0.1	200	0
			2-chlorotoluene	mg/kg	0.1	<0.1	<0.1	200	0
			4-chlorotoluene	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

VOC's in Soil (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129369.002	LB060442.015	Halogenated	1,3-dichlorobenzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatics	1,4-dichlorobenzene	mg/kg	0.1	<0.1	<0.1	200	0
			1,2-dichlorobenzene	mg/kg	0.1	<0.1	<0.1	200	0
			1,2,4-trichlorobenzene	mg/kg	0.1	<0.1	<0.1	200	0
			1,2,3-trichlorobenzene	mg/kg	0.1	<0.1	<0.1	200	0
		Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			Styrene (Vinyl benzene)	mg/kg	0.1	<0.1	<0.1	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
			Isopropylbenzene (Cumene)	mg/kg	0.1	<0.1	<0.1	200	0
			n-propylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			1,3,5-trimethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			tert-butylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			1,2,4-trimethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			sec-butylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			p-isopropyltoluene	mg/kg	0.1	<0.1	<0.1	200	0
			n-butylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
		Nitrogenous	Acrylonitrile	mg/kg	0.1	<0.1	<0.1	200	0
		Compounds	2-nitropropane	mg/kg	10	<10	<10	200	0
		Oxygenated	Acetone (2-propanone)	mg/kg	10	<10	<10	200	0
		Compounds	MtBE (Methyl-tert-butyl ether)	mg/kg	0.1	<0.1	<0.1	200	0
			Vinyl acetate	mg/kg	10	<10	<10	200	0
			MEK (2-butanone)	mg/kg	10	<10	<10	200	0
			MIBK (4-methyl-2-pentanone)	mg/kg	1	<1	<1	200	0
			2-hexanone (MBK)	mg/kg	5	<5	<5	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Sulphonated	Carbon disulfide	mg/kg	0.5	<0.5	<0.5	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.5	4.4	50	3
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.6	5.4	50	3
			d8-toluene (Surrogate)	mg/kg	-	4.7	5.1	50	9
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.7	5.0	50	7
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0
		Trihalomethan	Chloroform	mg/kg	0.1	<0.1	<0.1	200	0
		es	Bromodichloromethane	mg/kg	0.1	<0.1	<0.1	200	0
			Chlorodibromomethane	mg/kg	0.1	<0.1	<0.1	200	0
			Bromoform	mg/kg	0.1	<0.1	<0.1	200	0
SE129375.002	LB060442.028	Monocyclic	Benzene	mg/kg	0.1	<0.1	<0.1	200	0
		Aromatic	Toluene	mg/kg	0.1	<0.1	<0.1	200	0
			Ethylbenzene	mg/kg	0.1	<0.1	<0.1	200	0
			m/p-xylene	mg/kg	0.2	<0.2	<0.2	200	0
			o-xylene	mg/kg	0.1	<0.1	<0.1	200	0
		Polycyclic	Naphthalene	mg/kg	0.1	<0.1	<0.1	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.4	50	6
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	5.3	50	7
			d8-toluene (Surrogate)	mg/kg	-	4.9	5.1	50	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	4.1	50	1
		Totals	Total Xylenes*	mg/kg	0.3	<0.3	<0.3	200	0
			Total BTEX*	mg/kg	0.6	<0.6	<0.6	200	0

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129369.002	LB060442.015		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.7	4.6	30	2
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.4	5.3	30	3
			d8-toluene (Surrogate)	mg/kg	-	5.1	5.4	30	7
			Bromofluorobenzene (Surrogate)	mg/kg	-	3.9	4.3	30	11
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Volatile Petroleum Hydrocarbons in Soil (continued) — **Method: ME-(AU)-[ENV]AN433/AN434/AN410**

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129369.002	LB060442.015	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0
SE129375.002	LB060442.030		TRH C6-C10	mg/kg	25	<25	<25	200	0
			TRH C6-C9	mg/kg	20	<20	<20	200	0
		Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.1	4.4	30	6
			d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.0	5.2	30	5
			d8-toluene (Surrogate)	mg/kg	-	4.9	5.1	30	4
			Bromofluorobenzene (Surrogate)	mg/kg	-	4.0	4.1	30	1
		VPH F Bands	Benzene (F0)	mg/kg	0.1	<0.1	<0.1	200	0
			TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	<25	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060583.002	Mercury	mg/kg	0.01	0.19	0.2	70 - 130	97
LB060584.002	Mercury	mg/kg	0.01	0.21	0.2	70 - 130	104

OC Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060450.002		Heptachlor	mg/kg	0.1	0.2	0.2	60 - 140	76
		Aldrin	mg/kg	0.1	0.1	0.2	60 - 140	74
		Delta BHC	mg/kg	0.1	0.1	0.2	60 - 140	70
		Dieldrin	mg/kg	0.2	<0.2	0.2	60 - 140	70
		Endrin	mg/kg	0.2	<0.2	0.2	60 - 140	73
		p,p'-DDT	mg/kg	0.1	0.1	0.2	60 - 140	65
	Surrogates	Tetrachloro-m-xylene (TCMX) (Surrogate)	mg/kg	-	0.17	0.15	40 - 130	111

OP Pesticides in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060450.002		Dichlorvos	mg/kg	0.5	1.9	2	60 - 140	96
		Diazinon (Dimpylate)	mg/kg	0.5	1.9	2	60 - 140	95
		Chlorpyrifos (Chlorpyrifos Ethyl)	mg/kg	0.2	1.7	2	60 - 140	86
		Ethion	mg/kg	0.2	2.2	2	60 - 140	108
	Surrogates	2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	104

PAH (Polynuclear Aromatic Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060450.002		Naphthalene	mg/kg	0.1	3.6	4	60 - 140	89
		Acenaphthylene	mg/kg	0.1	3.7	4	60 - 140	93
		Acenaphthene	mg/kg	0.1	3.6	4	60 - 140	90
		Phenanthrene	mg/kg	0.1	3.5	4	60 - 140	88
		Anthracene	mg/kg	0.1	3.7	4	60 - 140	92
		Fluoranthene	mg/kg	0.1	3.5	4	60 - 140	87
		Pyrene	mg/kg	0.1	3.7	4	60 - 140	93
		Benzo(a)pyrene	mg/kg	0.1	4.2	4	60 - 140	105
	Surrogates	d5-nitrobenzene (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	104
		2-fluorobiphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	94
		d14-p-terphenyl (Surrogate)	mg/kg	-	0.5	0.5	40 - 130	104

PCBs in Soil

Method: ME-(AU)-[ENV]AN400/AN420

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060450.002	Arochlor 1260	mg/kg	0.2	0.5	0.4	60 - 140	121

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

Sample Number	Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060574.002	Arsenic, As	mg/kg	3	52	50	80 - 120	103
	Cadmium, Cd	mg/kg	0.3	51	50	80 - 120	102
	Chromium, Cr	mg/kg	0.3	51	50	80 - 120	102
	Copper, Cu	mg/kg	0.5	52	50	80 - 120	104
	Lead, Pb	mg/kg	1	51	50	80 - 120	102
	Nickel, Ni	mg/kg	0.5	52	50	80 - 120	103
	Zinc, Zn	mg/kg	0.5	52	50	80 - 120	104
LB060575.002	Arsenic, As	mg/kg	3	52	50	80 - 120	105
	Cadmium, Cd	mg/kg	0.3	52	50	80 - 120	104
	Chromium, Cr	mg/kg	0.3	52	50	80 - 120	104
	Copper, Cu	mg/kg	0.5	53	50	80 - 120	105
	Lead, Pb	mg/kg	1	52	50	80 - 120	104
	Nickel, Ni	mg/kg	0.5	52	50	80 - 120	105
	Zinc, Zn	mg/kg	0.5	53	50	80 - 120	106

TRH (Total Recoverable Hydrocarbons) in Soil

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

TRH (Total Recoverable Hydrocarbons) in Soil (continued)

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060450.002		TRH C10-C14	mg/kg	20	41	40	60 - 140	103
		TRH C15-C28	mg/kg	45	<45	40	60 - 140	98
		TRH C29-C36	mg/kg	45	<45	40	60 - 140	83
	TRH F Bands	TRH >C10-C16 (F2)	mg/kg	25	40	40	60 - 140	100
		TRH >C16-C34 (F3)	mg/kg	90	<90	40	60 - 140	98
		TRH >C34-C40 (F4)	mg/kg	120	<120	20	60 - 140	80

VOC's in Soil

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060442.002	Halogenated	1,1-dichloroethene	mg/kg	0.1	2.0	2.56	60 - 140	77
	Aliphatics	1,2-dichloroethane	mg/kg	0.1	2.9	2.56	60 - 140	114
		Trichloroethene (Trichloroethylene -TCE)	mg/kg	0.1	2.2	2.56	60 - 140	88
	Halogenated	Chlorobenzene	mg/kg	0.1	3.2	2.56	60 - 140	126
	Monocyclic	Benzene	mg/kg	0.1	2.5	2.9	60 - 140	87
	Aromatic	Toluene	mg/kg	0.1	2.7	2.9	60 - 140	93
		Ethylbenzene	mg/kg	0.1	2.9	2.9	60 - 140	98
		m/p-xylene	mg/kg	0.2	5.5	5.8	60 - 140	95
		o-xylene	mg/kg	0.1	2.8	2.9	60 - 140	97
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	5.3	5	60 - 140	105
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.7	5	60 - 140	113
		d8-toluene (Surrogate)	mg/kg	-	5.1	5	60 - 140	102
		Bromofluorobenzene (Surrogate)	mg/kg	-	5.3	5	60 - 140	105
	Trihalomethan	Chloroform	mg/kg	0.1	1.9	2.56	60 - 140	74

Volatile Petroleum Hydrocarbons in Soil

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB060442.002		TRH C6-C10	mg/kg	25	<25	24.65	60 - 140	98
		TRH C6-C9	mg/kg	20	22	23.2	60 - 140	97
	Surrogates	Dibromofluoromethane (Surrogate)	mg/kg	-	4.9	5	60 - 140	99
		d4-1,2-dichloroethane (Surrogate)	mg/kg	-	5.7	5	60 - 140	114
		d8-toluene (Surrogate)	mg/kg	-	5.6	5	60 - 140	113
		Bromofluorobenzene (Surrogate)	mg/kg	-	4.8	5	60 - 140	95
	VPH F Bands	TRH C6-C10 minus BTEX (F1)	mg/kg	25	<25	7.25	60 - 140	107

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub -sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury in Soil

Method: ME-(AU)-[ENV]AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129369.001	LB060583.004	Mercury	mg/kg	0.01	0.27	0.08	0.2	96
SE129375.002	LB060584.004	Mercury	mg/kg	0.01	0.22	0.03	0.2	94

Total Recoverable Metals in Soil by ICPOES from EPA 200.8 Digest

Method: ME-(AU)-[ENV]AN040/AN320

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129369.001	LB060574.004	Arsenic, As	mg/kg	3	51	5	50	92
		Cadmium, Cd	mg/kg	0.3	43	<0.3	50	85
		Chromium, Cr	mg/kg	0.3	63	14	50	97
		Copper, Cu	mg/kg	0.5	99	69	50	59 ④
		Lead, Pb	mg/kg	1	100	52	50	98
		Nickel, Ni	mg/kg	0.5	57	9.8	50	94
		Zinc, Zn	mg/kg	0.5	140	92	50	103
SE129375.002	LB060575.004	Arsenic, As	mg/kg	3	57	11	50	91
		Cadmium, Cd	mg/kg	0.3	47	0.5	50	92
		Chromium, Cr	mg/kg	0.3	69	19	50	99
		Copper, Cu	mg/kg	0.5	69	18	50	103
		Lead, Pb	mg/kg	1	87	46	50	82
		Nickel, Ni	mg/kg	0.5	54	7.1	50	93
		Zinc, Zn	mg/kg	0.5	230	170	50	119

MATRIX SPIKE DUPLICATES

SE129375 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

QC Sample	Sample Number	Parameter	Units	LOR

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here: http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

*	Non-accredited analysis.
-	Sample not analysed for this analyte.
^	Analysis performed by external laboratory.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

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ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS

Contact	Daniel Soliman
Client	Environmental Investigations
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Email	daniel.soliman@eiaustralia.com.au
Project	**E22232 - 165 Milton Street, Ashbury**
Order Number	**E22232**
Samples	2

LABORATORY DETAILS

Manager	Huong Crawford
Laboratory	SGS Alexandria Environmental
Address	Unit 16, 33 Maddox St Alexandria NSW 2015
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Email	au.environmental.sydney@sgs.com
SGS Reference	SE129375 R0
Report Number	0000086921
Date Reported	14 Jul 2014
Date Received	07 Jul 2014

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

No respirable fibres detected in all samples using trace analysis technique.
Asbestos analysed by Approved Identifier Yusuf Kuthpudin.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

Ly Kim Ha
Organic Section Head

Ravee Sivasubramaniam
Asbestos Analyst

ANALYTICAL REPORT

RESULTS

Fibre Identification in soil — Method AN602

Laboratory Reference	Client Reference	Matrix	Sample Description	Date Sampled	Fibre Identification	Est.%w/w
SE129375.001	BH4-1	Soil	220g Clay,soil,rocks	07 Jul 2014	No Asbestos Found	<0.01

METHOD SUMMARY

SE129375 R0

METHOD	METHODOLOGY SUMMARY
AN602	Qualitative identification of chrysotile, amosite and crocidolite in bulk samples by polarised light microscopy (PLM) in conjunction with dispersion staining (DS). AS4964 provides the basis for this document. Unequivocal identification of the asbestos minerals present is made by obtaining sufficient diagnostic `clues`, which provide a reasonable degree of certainty, dispersion staining is a mandatory `clue` for positive identification. If sufficient `clues` are absent, then positive identification of asbestos is not possible. This procedure requires removal of suspect fibres/bundles from the sample which cannot be returned.
AN602	Fibres/material that cannot be unequivocably identified as one of the three asbestos forms, will be reported as unknown mineral fibres (umf).
AN602	AS4964.2004 Method for the Qualitative Identification of Asbestos in Bulk Samples, Section 8.4, Trace Analysis Criteria, Note 4 states:"Depending upon sample condition and fibre type, the detection limit of this technique has been found to lie generally in the range of 1 in 1,000 to 1 in 10,000 parts by weight, equivalent to 1 to 0.1 g/kg."

FOOTNOTES

Amosite	-	Brown Asbestos	NA	-	Not Analysed
Chrysotile	-	White Asbestos	LNR	-	Listed, Not Required
Crocidolite	-	Blue Asbestos	*	-	Not Accredited
Amphiboles	-	Amosite and/or Crocidolite	**	-	Indicative data, theoretical holding time exceeded.

This report does not comply with the analytical reporting recommendations in the Western Australian Department of Health Guidelines for the Assessment and Remediation and Management of Asbestos Contaminated sites in Western Australia - May 2009.

Sampled by the client.

Where reported: 'Asbestos Detected': Asbestos detected by polarized light microscopy, including dispersion staining.
Where reported: 'No Asbestos Found': No Asbestos Found by polarized light microscopy, including dispersion staining.
Where reported: 'UMF Detected': Mineral fibres of unknown type detected by polarized light microscopy, including dispersion staining. Confirmation by another independent analytical technique may be necessary.

Even after disintegration it can be very difficult, or impossible, to detect the presence of asbestos in some asbestos -containing bulk materials using polarised light microscopy. This is due to the low grade or small length or diameter of asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here : http://www.sgs.com.au.pv.sgsv3/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/en/Terms-and-Conditions/General-Conditions-of-Services-English.aspx . The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

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CERTIFICATE OF ANALYSIS 112115

Client:

Environmental Investigations
Suite 6.01, 55 Miller Street
Pyrmont
NSW 2009

Attention: Earin Short

Sample log in details:

Your Reference:	**E22232, Ashbury**
No. of samples:	1 Soil
Date samples received / completed instructions received	25/06/2014 / 25/06/2014

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	2/07/14 / 1/07/14
Date of Preliminary Report:	Not Issued

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Accredited for compliance with ISO/IEC 17025. **Tests not covered by NATA are denoted with *.**

Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Soil		
Our Reference:	UNITS	112115-1
Your Reference	----------	I1
Date Sampled	----------	24/06/2014
Type of sample		Soil
Date extracted	-	26/06/2014
Date analysed	-	27/06/2014
TRHC$_6$ - C$_9$	mg/kg	<25
TRHC$_6$ - C$_{10}$	mg/kg	<25
vTPHC$_6$ - C$_{10}$ less BTEX (F1)	mg/kg	<25
Benzene	mg/kg	<0.2
Toluene	mg/kg	<0.5
Ethylbenzene	mg/kg	<1
m+p-xylene	mg/kg	<2
o-Xylene	mg/kg	<1
naphthalene	mg/kg	<1
Surrogate aaa-Trifluorotoluene	%	102

svTRH (C10-C40) in Soil		
Our Reference:	UNITS	112115-1
Your Reference	----------	I1
Date Sampled	----------	24/06/2014
Type of sample		Soil
Date extracted	-	26/06/2014
Date analysed	-	27/06/2014
TRHC$_{10}$ - C$_{14}$	mg/kg	<50
TRHC$_{15}$ - C$_{28}$	mg/kg	<100
TRHC$_{29}$ - C$_{36}$	mg/kg	<100
TRH>C$_{10}$-C$_{16}$	mg/kg	<50
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	mg/kg	<50
TRH>C$_{16}$-C$_{34}$	mg/kg	<100
TRH>C$_{34}$-C$_{40}$	mg/kg	<100
Surrogate o-Terphenyl	%	93

Acid Extractable metals in soil		
Our Reference:	UNITS	112115-1
Your Reference	----------	l1
Date Sampled	----------	24/06/2014
Type of sample		Soil
Date digested	-	26/06/2014
Date analysed	-	26/06/2014
Arsenic	mg/kg	<4
Cadmium	mg/kg	<0.4
Chromium	mg/kg	2
Copper	mg/kg	2
Lead	mg/kg	2
Mercury	mg/kg	<0.1
Nickel	mg/kg	11
Zinc	mg/kg	5

Moisture		
Our Reference:	UNITS	112115-1
Your Reference	----------	l1
Date Sampled	----------	24/06/2014
Type of sample		Soil
Date prepared	-	26/06/2014
Date analysed	-	30/06/2014
Moisture	%	9.3

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-014	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Metals-020 ICP-AES	Determination of various metals by ICP-AES.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.
Inorg-008	Moisture content determined by heating at 105+/-5 deg C for a minimum of 12 hours.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2014	[NT]	[NT]	LCS-3	26/06/2014
Date analysed	-			27/06/2014	[NT]	[NT]	LCS-3	27/06/2014
TRHC$_6$ - C$_9$	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-3	94%
TRHC$_6$ - C$_{10}$	mg/kg	25	Org-016	<25	[NT]	[NT]	LCS-3	94%
Benzene	mg/kg	0.2	Org-016	<0.2	[NT]	[NT]	LCS-3	96%
Toluene	mg/kg	0.5	Org-016	<0.5	[NT]	[NT]	LCS-3	97%
Ethylbenzene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-3	93%
m+p-xylene	mg/kg	2	Org-016	<2	[NT]	[NT]	LCS-3	93%
o-Xylene	mg/kg	1	Org-016	<1	[NT]	[NT]	LCS-3	93%
naphthalene	mg/kg	1	Org-014	<1	[NT]	[NT]	[NR]	[NR]
Surrogate aaa-Trifluorotoluene	%		Org-016	95	[NT]	[NT]	LCS-3	96%

QUALITY CONTROL svTRH (C10-C40) in Soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			26/06/2014	[NT]	[NT]	LCS-3	26/06/2014
Date analysed	-			26/06/2014	[NT]	[NT]	LCS-3	26/06/2014
TRHC$_{10}$ - C$_{14}$	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-3	94%
TRHC$_{15}$ - C$_{28}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	104%
TRHC$_{29}$ - C$_{36}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	79%
TRH>C$_{10}$-C$_{16}$	mg/kg	50	Org-003	<50	[NT]	[NT]	LCS-3	94%
TRH>C$_{16}$-C$_{34}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	104%
TRH>C$_{34}$-C$_{40}$	mg/kg	100	Org-003	<100	[NT]	[NT]	LCS-3	79%
Surrogate o-Terphenyl	%		Org-003	75	[NT]	[NT]	LCS-3	90%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date digested	-			26/06/2014	[NT]	[NT]	LCS-6	26/06/2014
Date analysed	-			26/06/2014	[NT]	[NT]	LCS-6	26/06/2014
Arsenic	mg/kg	4	Metals-020 ICP-AES	<4	[NT]	[NT]	LCS-6	97%
Cadmium	mg/kg	0.4	Metals-020 ICP-AES	<0.4	[NT]	[NT]	LCS-6	104%
Chromium	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-6	102%
Copper	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-6	102%
Lead	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-6	100%
Mercury	mg/kg	0.1	Metals-021 CV-AAS	<0.1	[NT]	[NT]	LCS-6	95%

QUALITY CONTROL Acid Extractable metals in soil	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Nickel	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-6	102%
Zinc	mg/kg	1	Metals-020 ICP-AES	<1	[NT]	[NT]	LCS-6	102%

QUALITY CONTROL Moisture	UNITS	PQL	METHOD	Blank
Date prepared	-			[NT]
Date analysed	-			[NT]
Moisture	%	0.1	Inorg-008	[NT]

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

ANALYTICAL REPORT

WORLD RECOGNISED ACCREDITATION

CLIENT DETAILS		LABORATORY DETAILS	
Contact	Sari Eru	Manager	Huong Crawford
Client	Environmental Investigations	Laboratory	SGS Alexandria Environmental
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Project	**E22232 - 165 Milton St - Ashbury**	SGS Reference	**SE129745 R0**
Order Number	**E22232**	Report Number	0000087699
Samples	5	Date Reported	24 Jul 2014
Date Started	22 Jul 2014	Date Received	17 Jul 2014

COMMENTS

Accredited for compliance with ISO/IEC 17025. NATA accredited laboratory 2562(4354).

PAH - The Limit of Reporting (LOR) has been raised due to interferences from the sample matrix.

SIGNATORIES

Andy Sutton
Senior Organic Chemist

Dong Liang
Metals/Inorganics Team Leader

Jaimie Cheung
Metals Chemist

Ly Kim Ha
Organic Section Head

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name SE129745.001 Water 16 Jul 2014 MW1-1	SE129745.002 Water 16 Jul 2014 MW2-1	SE129745.003 Water 16 Jul 2014 MW3-1	SE129745.004 Water 16 Jul 2014 MW5-1
VOCs in Water Method: AN433/AN434						
Fumigants						
2,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,2-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
cis-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
trans-1,3-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,2-dibromoethane (EDB)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Halogenated Aliphatics						
Dichlorodifluoromethane (CFC-12)	µg/L	5	<5	<5	<5	<5
Chloromethane	µg/L	5	<5	<5	<5	<5
Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3	<0.3	<0.3	<0.3
Bromomethane	µg/L	10	<10	<10	<10	<10
Chloroethane	µg/L	5	<5	<5	<5	<5
Trichlorofluoromethane	µg/L	1	<1	<1	<1	<1
Iodomethane	µg/L	5	<5	<5	<5	<5
1,1-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Dichloromethane (Methylene chloride)	µg/L	5	<5	<5	<5	<5
Allyl chloride	µg/L	2	<2	<2	<2	<2
trans-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,1-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
cis-1,2-dichloroethene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Bromochloromethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,2-dichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,1,1-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,1-dichloropropene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Carbon tetrachloride	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Dibromomethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,1,2-trichloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
cis-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,2,3-trichloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
trans-1,4-dichloro-2-butene	µg/L	1	<1	<1	<1	<1
1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Halogenated Aromatics						
Chlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Bromobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
2-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
4-chlorotoluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,3-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,4-dichlorobenzene	µg/L	0.3	<0.3	<0.3	<0.3	<0.3
1,2-dichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,2,3-trichlorobenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Monocyclic Aromatic Hydrocarbons						
Benzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Toluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
m/p-xylene	µg/L	1	<1	<1	<1	<1
o-xylene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Styrene (Vinyl benzene)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene (Cumene)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
n-propylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name SE129745.001 Water 16 Jul 2014 MW1-1	SE129745.002 Water 16 Jul 2014 MW2-1	SE129745.003 Water 16 Jul 2014 MW3-1	SE129745.004 Water 16 Jul 2014 MW5-1
VOCs in Water Method: AN433/AN434 (continued)						
1,3,5-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
tert-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
1,2,4-trimethylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
sec-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
p-isopropyltoluene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
n-butylbenzene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Nitrogenous Compounds						
Acrylonitrile	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
2-nitropropane	µg/L	100	<100	<100	<100	<100
Oxygenated Compounds						
Acetone (2-propanone)	µg/L	10	<10	<10	<10	<10
MtBE (Methyl-tert-butyl ether)	µg/L	2	<2	<2	<2	<2
Vinyl acetate	µg/L	10	<10	<10	<10	<10
MEK (2-butanone)	µg/L	10	<10	<10	<10	<10
MIBK (4-methyl-2-pentanone)	µg/L	5	<5	<5	<5	<5
2-hexanone (MBK)	µg/L	5	<5	<5	<5	<5
Polycyclic VOCs						
Naphthalene	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Sulphonated Compounds						
Carbon disulfide	µg/L	2	<2	<2	<2	<2
Surrogates						
Dibromofluoromethane (Surrogate)	%	-	**85**	**112**	**84**	**103**
d4-1,2-dichloroethane (Surrogate)	%	-	**86**	**113**	**92**	**98**
d8-toluene (Surrogate)	%	-	**100**	**80**	**85**	**95**
Bromofluorobenzene (Surrogate)	%	-	**111**	**107**	**113**	**116**
Totals						
Total Xylenes	µg/L	1.5	<1.5	<1.5	<1.5	<1.5
Total BTEX	µg/L	3	<3	<3	<3	<3
Total VOC	µg/L	10	-	-	-	-

Parameter	Units	LOR	Sample Number: SE129745.001 Sample Matrix: Water Sample Date: 16 Jul 2014 Sample Name: MW1-1	SE129745.002 Water 16 Jul 2014 MW2-1	SE129745.003 Water 16 Jul 2014 MW3-1	SE129745.004 Water 16 Jul 2014 MW5-1
VOCs in Water Method: AN433/AN434 (continued)						
Trihalomethanes						
Chloroform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	**1.6**
Bromodichloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane (THM)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Bromoform (THM)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
Volatile Petroleum Hydrocarbons in Water Method: AN433/AN434/AN410						
TRH C6-C10	µg/L	50	<50	<50	<50	<50
TRH C6-C9	µg/L	40	<40	<40	<40	<40
Surrogates						
Dibromofluoromethane (Surrogate)	%	-	**103**	**110**	**100**	**105**
d4-1,2-dichloroethane (Surrogate)	%	-	**105**	**112**	**96**	**98**
d8-toluene (Surrogate)	%	-	**83**	**89**	**98**	**100**
Bromofluorobenzene (Surrogate)	%	-	**89**	**98**	**93**	**88**
VPH F Bands						
Benzene (F0)	µg/L	0.5	<0.5	<0.5	<0.5	<0.5
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50	<50	<50	<50
TRH (Total Recoverable Hydrocarbons) in Water Method: AN403						
TRH C10-C14	µg/L	50	<50	<50	<50	<50
TRH C15-C28	µg/L	200	<200	<200	<200	**830**
TRH C29-C36	µg/L	200	<200	<200	<200	<200
TRH C37-C40	µg/L	200	<200	<200	<200	<200
TRH C10-C36	µg/L	450	<450	<450	<450	**830**
TRH C10-C40	µg/L	650	<650	<650	<650	**830**
TRH F Bands						
TRH >C10-C16 (F2)	µg/L	60	<60	<60	<60	<60
TRH >C16-C34 (F3)	µg/L	500	<500	<500	<500	**870**
TRH >C34-C40 (F4)	µg/L	500	<500	<500	<500	<500
PAH (Polynuclear Aromatic Hydrocarbons) in Water Method: AN420						
Naphthalene	µg/L	0.1	**0.3**	<0.1	**0.2**	**0.1**
2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	µg/L	0.1	**0.2**	<0.1	**0.3**	<0.1
Fluorene	µg/L	0.1	**0.2**	<0.1	**0.4**	<0.1
Phenanthrene	µg/L	0.1	**0.4**	<0.1	**1.2**	<0.2↑
Anthracene	µg/L	0.1	**0.1**	<0.1	**0.3**	<0.1
Fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Chrysene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a&h)anthracene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	<0.1	<0.1
Total PAH (18)	µg/L	1	**1**	<1	**2**	<1

Parameter	Units	LOR	Sample Number Sample Matrix Sample Date Sample Name	SE129745.001 Water 16 Jul 2014 MW1-1	SE129745.002 Water 16 Jul 2014 MW2-1	SE129745.003 Water 16 Jul 2014 MW3-1	SE129745.004 Water 16 Jul 2014 MW5-1
PAH (Polynuclear Aromatic Hydrocarbons) in Water Method: AN420 (continued)							
Surrogates							
d5-nitrobenzene (Surrogate)	%	-		**114**	**110**	**102**	**100**
2-fluorobiphenyl (Surrogate)	%	-		**80**	**86**	**80**	**72**
d14-p-terphenyl (Surrogate)	%	-		**112**	**106**	**110**	**108**
Trace Metals (Dissolved) in Water by ICPMS Method: AN318							
Arsenic, As	µg/L	1		<1	<1	<1	<1
Cadmium, Cd	µg/L	0.1		**0.4**	**4.2**	**1.2**	<0.1
Chromium, Cr	µg/L	1		<1	<1	<1	<1
Copper, Cu	µg/L	1		**12**	**7**	**21**	**1**
Lead, Pb	µg/L	1		<1	<1	<1	<1
Nickel, Ni	µg/L	1		**93**	**45**	**88**	**25**
Zinc, Zn	µg/L	5		**260**	**100**	**240**	**85**
Mercury (dissolved) in Water Method: AN311/AN312							
Mercury	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001

Parameter	Units	LOR	Sample Number SE129745.005 Sample Matrix Water Sample Date 16 Jul 2014 Sample Name MWB-1
VOCs in Water Method: AN433/AN434			
Fumigants			
2,2-dichloropropane	µg/L	0.5	-
1,2-dichloropropane	µg/L	0.5	-
cis-1,3-dichloropropene	µg/L	0.5	-
trans-1,3-dichloropropene	µg/L	0.5	-
1,2-dibromoethane (EDB)	µg/L	0.5	-
Halogenated Aliphatics			
Dichlorodifluoromethane (CFC-12)	µg/L	5	-
Chloromethane	µg/L	5	-
Vinyl chloride (Chloroethene)	µg/L	0.3	-
Bromomethane	µg/L	10	-
Chloroethane	µg/L	5	-
Trichlorofluoromethane	µg/L	1	-
Iodomethane	µg/L	5	-
1,1-dichloroethene	µg/L	0.5	-
Dichloromethane (Methylene chloride)	µg/L	5	-
Allyl chloride	µg/L	2	-
trans-1,2-dichloroethene	µg/L	0.5	-
1,1-dichloroethane	µg/L	0.5	-
cis-1,2-dichloroethene	µg/L	0.5	-
Bromochloromethane	µg/L	0.5	-
1,2-dichloroethane	µg/L	0.5	-
1,1,1-trichloroethane	µg/L	0.5	-
1,1-dichloropropene	µg/L	0.5	-
Carbon tetrachloride	µg/L	0.5	-
Dibromomethane	µg/L	0.5	-
Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	-
1,1,2-trichloroethane	µg/L	0.5	-
1,3-dichloropropane	µg/L	0.5	-
Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	-
1,1,1,2-tetrachloroethane	µg/L	0.5	-
cis-1,4-dichloro-2-butene	µg/L	1	-
1,1,2,2-tetrachloroethane	µg/L	0.5	-
1,2,3-trichloropropane	µg/L	0.5	-
trans-1,4-dichloro-2-butene	µg/L	1	-
1,2-dibromo-3-chloropropane	µg/L	0.5	-
Hexachlorobutadiene	µg/L	0.5	-

Parameter	Units	LOR	Sample Number SE129745.005 Sample Matrix Water Sample Date 16 Jul 2014 Sample Name MWB-1
VOCs in Water Method: AN433/AN434 (continued)			
Halogenated Aromatics			
Chlorobenzene	µg/L	0.5	-
Bromobenzene	µg/L	0.5	-
2-chlorotoluene	µg/L	0.5	-
4-chlorotoluene	µg/L	0.5	-
1,3-dichlorobenzene	µg/L	0.5	-
1,4-dichlorobenzene	µg/L	0.3	-
1,2-dichlorobenzene	µg/L	0.5	-
1,2,4-trichlorobenzene	µg/L	0.5	-
1,2,3-trichlorobenzene	µg/L	0.5	-
Monocyclic Aromatic Hydrocarbons			
Benzene	µg/L	0.5	<0.5
Toluene	µg/L	0.5	<0.5
Ethylbenzene	µg/L	0.5	<0.5
m/p-xylene	µg/L	1	<1
o-xylene	µg/L	0.5	<0.5
Styrene (Vinyl benzene)	µg/L	0.5	-
Isopropylbenzene (Cumene)	µg/L	0.5	-
n-propylbenzene	µg/L	0.5	-
1,3,5-trimethylbenzene	µg/L	0.5	-
tert-butylbenzene	µg/L	0.5	-
1,2,4-trimethylbenzene	µg/L	0.5	-
sec-butylbenzene	µg/L	0.5	-
p-isopropyltoluene	µg/L	0.5	-
n-butylbenzene	µg/L	0.5	-
Nitrogenous Compounds			
Acrylonitrile	µg/L	0.5	-
2-nitropropane	µg/L	100	-

Parameter	Units	LOR	Sample Number SE129745.005 Sample Matrix Water Sample Date 16 Jul 2014 Sample Name MWB-1
VOCs in Water Method: AN433/AN434 (continued)			
Oxygenated Compounds			
Acetone (2-propanone)	µg/L	10	-
MtBE (Methyl-tert-butyl ether)	µg/L	2	-
Vinyl acetate	µg/L	10	-
MEK (2-butanone)	µg/L	10	-
MIBK (4-methyl-2-pentanone)	µg/L	5	-
2-hexanone (MBK)	µg/L	5	-
Polycyclic VOCs			
Naphthalene	µg/L	0.5	<0.5
Sulphonated Compounds			
Carbon disulfide	µg/L	2	-
Surrogates			
Dibromofluoromethane (Surrogate)	%	-	**92**
d4-1,2-dichloroethane (Surrogate)	%	-	**109**
d8-toluene (Surrogate)	%	-	**106**
Bromofluorobenzene (Surrogate)	%	-	**87**
Totals			
Total Xylenes	µg/L	1.5	<1.5
Total BTEX	µg/L	3	<3
Total VOC	µg/L	10	-
Trihalomethanes			
Chloroform (THM)	µg/L	0.5	-
Bromodichloromethane (THM)	µg/L	0.5	-
Dibromochloromethane (THM)	µg/L	0.5	-
Bromoform (THM)	µg/L	0.5	-

Parameter	Units	LOR	Sample Number SE129745.005 Sample Matrix Water Sample Date 16 Jul 2014 Sample Name MWB-1
Volatile Petroleum Hydrocarbons in Water Method: AN433/AN434/AN410			
TRH C6-C10	µg/L	50	<50
TRH C6-C9	µg/L	40	<40
Surrogates			
Dibromofluoromethane (Surrogate)	%	-	**92**
d4-1,2-dichloroethane (Surrogate)	%	-	**109**
d8-toluene (Surrogate)	%	-	**106**
Bromofluorobenzene (Surrogate)	%	-	**87**
VPH F Bands			
Benzene (F0)	µg/L	0.5	<0.5
TRH C6-C10 minus BTEX (F1)	µg/L	50	<50
TRH (Total Recoverable Hydrocarbons) in Water Method: AN403			
TRH C10-C14	µg/L	50	<50
TRH C15-C28	µg/L	200	<200
TRH C29-C36	µg/L	200	<200
TRH C37-C40	µg/L	200	<200
TRH C10-C36	µg/L	450	<450
TRH C10-C40	µg/L	650	<650
TRH F Bands			
TRH >C10-C16 (F2)	µg/L	60	<60
TRH >C16-C34 (F3)	µg/L	500	<500
TRH >C34-C40 (F4)	µg/L	500	<500

Parameter	Units	LOR	Sample Number SE129745.005 Sample Matrix Water Sample Date 16 Jul 2014 Sample Name MWB-1
PAH (Polynuclear Aromatic Hydrocarbons) in Water Method: AN420			
Naphthalene	µg/L	0.1	-
2-methylnaphthalene	µg/L	0.1	-
1-methylnaphthalene	µg/L	0.1	-
Acenaphthylene	µg/L	0.1	-
Acenaphthene	µg/L	0.1	-
Fluorene	µg/L	0.1	-
Phenanthrene	µg/L	0.1	-
Anthracene	µg/L	0.1	-
Fluoranthene	µg/L	0.1	-
Pyrene	µg/L	0.1	-
Benzo(a)anthracene	µg/L	0.1	-
Chrysene	µg/L	0.1	-
Benzo(b&j)fluoranthene	µg/L	0.1	-
Benzo(k)fluoranthene	µg/L	0.1	-
Benzo(a)pyrene	µg/L	0.1	-
Indeno(1,2,3-cd)pyrene	µg/L	0.1	-
Dibenzo(a&h)anthracene	µg/L	0.1	-
Benzo(ghi)perylene	µg/L	0.1	-
Total PAH (18)	µg/L	1	-
Surrogates			
d5-nitrobenzene (Surrogate)	%	-	-
2-fluorobiphenyl (Surrogate)	%	-	-
d14-p-terphenyl (Surrogate)	%	-	-
Trace Metals (Dissolved) in Water by ICPMS Method: AN318			
Arsenic, As	µg/L	1	<1
Cadmium, Cd	µg/L	0.1	**0.4**
Chromium, Cr	µg/L	1	<1
Copper, Cu	µg/L	1	**13**
Lead, Pb	µg/L	1	<1
Nickel, Ni	µg/L	1	**96**
Zinc, Zn	µg/L	5	**280**

Parameter	Units	LOR	Sample Number SE129745.005 Sample Matrix Water Sample Date 16 Jul 2014 Sample Name MWB-1
Mercury (dissolved) in Water Method: AN311/AN312			
Mercury	mg/L	0.0001	<0.0001

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Mercury (dissolved) in Water **Method: ME-(AU)-[ENV]AN311/AN312**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Mercury	LB061217	mg/L	0.0001	<0.0001	0%	99%	86%

PAH (Polynuclear Aromatic Hydrocarbons) in Water **Method: ME-(AU)-[ENV]AN420**

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
Naphthalene	LB061013	µg/L	0.1	<0.1	13%	94%
2-methylnaphthalene	LB061013	µg/L	0.1	<0.1	0%	NA
1-methylnaphthalene	LB061013	µg/L	0.1	<0.1	0%	NA
Acenaphthylene	LB061013	µg/L	0.1	<0.1	0%	94%
Acenaphthene	LB061013	µg/L	0.1	<0.1	6%	92%
Fluorene	LB061013	µg/L	0.1	<0.1	10%	NA
Phenanthrene	LB061013	µg/L	0.1	<0.1	5%	93%
Anthracene	LB061013	µg/L	0.1	<0.1	0%	98%
Fluoranthene	LB061013	µg/L	0.1	<0.1	0%	85%
Pyrene	LB061013	µg/L	0.1	<0.1	0%	87%
Benzo(a)anthracene	LB061013	µg/L	0.1	<0.1	0%	NA
Chrysene	LB061013	µg/L	0.1	<0.1	0%	NA
Benzo(b&j)fluoranthene	LB061013	µg/L	0.1	<0.1	0%	NA
Benzo(k)fluoranthene	LB061013	µg/L	0.1	<0.1	0%	NA
Benzo(a)pyrene	LB061013	µg/L	0.1	<0.1	0%	104%
Indeno(1,2,3-cd)pyrene	LB061013	µg/L	0.1	<0.1	0%	NA
Dibenzo(a&h)anthracene	LB061013	µg/L	0.1	<0.1	0%	NA
Benzo(ghi)perylene	LB061013	µg/L	0.1	<0.1	0%	NA
Total PAH (18)	LB061013	µg/L	1	<1		

Surrogates

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
d5-nitrobenzene (Surrogate)	LB061013	%	-	114%	2%	104%
2-fluorobiphenyl (Surrogate)	LB061013	%	-	112%	0%	110%
d14-p-terphenyl (Surrogate)	LB061013	%	-	106%	9%	108%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Trace Metals (Dissolved) in Water by ICPMS Method: ME-(AU)-[ENV]AN318

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery	MS %Recovery
Arsenic, As	LB061205	µg/L	1	<1	0 - 2%	91 - 92%	81 - 89%
Cadmium, Cd	LB061205	µg/L	0.1	<0.1	0%	95 - 97%	87%
Chromium, Cr	LB061205	µg/L	1	<1	0%	92 - 93%	80%
Copper, Cu	LB061205	µg/L	1	<1	0 - 2%	92 - 94%	71 - 74%
Lead, Pb	LB061205	µg/L	1	<1	0%	97 - 99%	85 - 93%
Nickel, Ni	LB061205	µg/L	1	<1	1 - 2%	96%	77 - 78%
Zinc, Zn	LB061205	µg/L	5	<5	0 - 5%	92 - 93%	72 - 74%

TRH (Total Recoverable Hydrocarbons) in Water Method: ME-(AU)-[ENV]AN403

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
TRH C10-C14	LB061013	µg/L	50	<50	0%	91%
TRH C15-C28	LB061013	µg/L	200	<200	0%	94%
TRH C29-C36	LB061013	µg/L	200	<200	0%	94%
TRH C37-C40	LB061013	µg/L	200	<200	0%	NA
TRH C10-C36	LB061013	µg/L	450	<450	0%	NA
TRH C10-C40	LB061013	µg/L	650	<650	0%	NA

TRH F Bands

Parameter	QC Reference	Units	LOR	MB	DUP %RPD	LCS %Recovery
TRH >C10-C16 (F2)	LB061013	µg/L	60	<60	0%	93%
TRH >C16-C34 (F3)	LB061013	µg/L	500	<500	0%	96%
TRH >C34-C40 (F4)	LB061013	µg/L	500	<500	0%	97%

VOCs in Water Method: ME-(AU)-[ENV]AN433/AN434

Fumigants

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
2,2-dichloropropane	LB061007	µg/L	0.5	<0.5	NA
1,2-dichloropropane	LB061007	µg/L	0.5	<0.5	NA
cis-1,3-dichloropropene	LB061007	µg/L	0.5	<0.5	NA
trans-1,3-dichloropropene	LB061007	µg/L	0.5	<0.5	NA
1,2-dibromoethane (EDB)	LB061007	µg/L	0.5	<0.5	NA

Halogenated Aliphatics

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Dichlorodifluoromethane (CFC-12)	LB061007	µg/L	5	<5	NA
Chloromethane	LB061007	µg/L	5	<5	NA
Vinyl chloride (Chloroethene)	LB061007	µg/L	0.3	<0.3	NA
Bromomethane	LB061007	µg/L	10	<10	NA
Chloroethane	LB061007	µg/L	5	<5	NA
Trichlorofluoromethane	LB061007	µg/L	1	<1	NA
Iodomethane	LB061007	µg/L	5	<5	NA
1,1-dichloroethene	LB061007	µg/L	0.5	<0.5	114%
Dichloromethane (Methylene chloride)	LB061007	µg/L	5	<5	NA
Allyl chloride	LB061007	µg/L	2	<2	NA
trans-1,2-dichloroethene	LB061007	µg/L	0.5	<0.5	NA
1,1-dichloroethane	LB061007	µg/L	0.5	<0.5	NA
cis-1,2-dichloroethene	LB061007	µg/L	0.5	<0.5	NA
Bromochloromethane	LB061007	µg/L	0.5	<0.5	NA
1,2-dichloroethane	LB061007	µg/L	0.5	<0.5	107%
1,1,1-trichloroethane	LB061007	µg/L	0.5	<0.5	NA
1,1-dichloropropene	LB061007	µg/L	0.5	<0.5	NA
Carbon tetrachloride	LB061007	µg/L	0.5	<0.5	NA
Dibromomethane	LB061007	µg/L	0.5	<0.5	NA
Trichloroethene (Trichloroethylene,TCE)	LB061007	µg/L	0.5	<0.5	101%

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

VOCs in Water **Method: ME-(AU)-[ENV]AN433/AN434 (continued)**

				MB	LCS %Recovery
1,1,2-trichloroethane	LB061007	µg/L	0.5	<0.5	NA
1,3-dichloropropane	LB061007	µg/L	0.5	<0.5	NA
Tetrachloroethene (Perchloroethylene,PCE)	LB061007	µg/L	0.5	<0.5	NA
1,1,1,2-tetrachloroethane	LB061007	µg/L	0.5	<0.5	NA
cis-1,4-dichloro-2-butene	LB061007	µg/L	1	<1	NA
1,1,2,2-tetrachloroethane	LB061007	µg/L	0.5	<0.5	NA
1,2,3-trichloropropane	LB061007	µg/L	0.5	<0.5	NA
trans-1,4-dichloro-2-butene	LB061007	µg/L	1	<1	NA
1,2-dibromo-3-chloropropane	LB061007	µg/L	0.5	<0.5	NA
Hexachlorobutadiene	LB061007	µg/L	0.5	<0.5	NA

Halogenated Aromatics

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Chlorobenzene	LB061007	µg/L	0.5	<0.5	98%
Bromobenzene	LB061007	µg/L	0.5	<0.5	NA
2-chlorotoluene	LB061007	µg/L	0.5	<0.5	NA
4-chlorotoluene	LB061007	µg/L	0.5	<0.5	NA
1,3-dichlorobenzene	LB061007	µg/L	0.5	<0.5	NA
1,4-dichlorobenzene	LB061007	µg/L	0.3	<0.3	NA
1,2-dichlorobenzene	LB061007	µg/L	0.5	<0.5	NA
1,2,4-trichlorobenzene	LB061007	µg/L	0.5	<0.5	NA
1,2,3-trichlorobenzene	LB061007	µg/L	0.5	<0.5	NA

Monocyclic Aromatic Hydrocarbons

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Benzene	LB061007	µg/L	0.5	<0.5	113%
Toluene	LB061007	µg/L	0.5	<0.5	99%
Ethylbenzene	LB061007	µg/L	0.5	<0.5	101%
m/p-xylene	LB061007	µg/L	1	<1	102%
o-xylene	LB061007	µg/L	0.5	<0.5	98%
Styrene (Vinyl benzene)	LB061007	µg/L	0.5	<0.5	NA
Isopropylbenzene (Cumene)	LB061007	µg/L	0.5	<0.5	NA
n-propylbenzene	LB061007	µg/L	0.5	<0.5	NA
1,3,5-trimethylbenzene	LB061007	µg/L	0.5	<0.5	NA
tert-butylbenzene	LB061007	µg/L	0.5	<0.5	NA
1,2,4-trimethylbenzene	LB061007	µg/L	0.5	<0.5	NA
sec-butylbenzene	LB061007	µg/L	0.5	<0.5	NA
p-isopropyltoluene	LB061007	µg/L	0.5	<0.5	NA
n-butylbenzene	LB061007	µg/L	0.5	<0.5	NA

Nitrogenous Compounds

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Acrylonitrile	LB061007	µg/L	0.5	<0.5	NA

Oxygenated Compounds

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Acetone (2-propanone)	LB061007	µg/L	10	<10	NA
MtBE (Methyl-tert-butyl ether)	LB061007	µg/L	2	<2	NA
Vinyl acetate	LB061007	µg/L	10	<10	NA
MEK (2-butanone)	LB061007	µg/L	10	<10	NA
MIBK (4-methyl-2-pentanone)	LB061007	µg/L	5	<5	NA
2-hexanone (MBK)	LB061007	µg/L	5	<5	NA

Polycyclic VOCs

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

VOCs in Water **Method: ME-(AU)-[ENV]AN433/AN434 (continued)**

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Naphthalene	LB061007	µg/L	0.5	<0.5	NA

Sulphonated Compounds

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Carbon disulfide	LB061007	µg/L	2	<2	NA

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Dibromofluoromethane (Surrogate)	LB061007	%	-	113%	98%
d4-1,2-dichloroethane (Surrogate)	LB061007	%	-	116%	95%
d8-toluene (Surrogate)	LB061007	%	-	94%	89%
Bromofluorobenzene (Surrogate)	LB061007	%	-	91%	96%

Totals

Parameter	QC Reference	Units	LOR	MB
Total Xylenes	LB061007	µg/L	1.5	<1.5
Total BTEX	LB061007	µg/L	3	<3

Trihalomethanes

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Chloroform (THM)	LB061007	µg/L	0.5	<0.5	61%
Bromodichloromethane (THM)	LB061007	µg/L	0.5	<0.5	NA
Dibromochloromethane (THM)	LB061007	µg/L	0.5	<0.5	NA
Bromoform (THM)	LB061007	µg/L	0.5	<0.5	NA

QC SUMMARY

MB blank results are compared to the Limit of Reporting
LCS and MS spike recoveries are measured as the percentage of analyte recovered from the sample compared the the amount of analyte spiked into the sample.
DUP and MSD relative percent differences are measured against their original counterpart samples according to the formula: *the absolute difference of the two results divided by the average of the two results as a percentage*. Where the DUP RPD is 'NA' , the results are less than the LOR and thus the RPD is not applicable.

Volatile Petroleum Hydrocarbons in Water **Method: ME-(AU)-[ENV]AN433/AN434/AN410**

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
TRH C6-C10	LB061007	µg/L	50	<50	106%
TRH C6-C9	LB061007	µg/L	40	<40	100%

Surrogates

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Dibromofluoromethane (Surrogate)	LB061007	%	-	92%	98%
d4-1,2-dichloroethane (Surrogate)	LB061007	%	-	88%	98%
d8-toluene (Surrogate)	LB061007	%	-	102%	99%
Bromofluorobenzene (Surrogate)	LB061007	%	-	118%	102%

VPH F Bands

Parameter	QC Reference	Units	LOR	MB	LCS %Recovery
Benzene (F0)	LB061007	µg/L	0.5	<0.5	NA
TRH C6-C10 minus BTEX (F1)	LB061007	µg/L	50	<50	113%

METHOD SUMMARY

METHOD	METHODOLOGY SUMMARY
AN020	Unpreserved water sample is filtered through a 0.45µm membrane filter and acidified with nitric acid similar to APHA3030B.
AN083	Separatory funnels are used for aqueous samples and extracted by transferring an appropriate volume (mass) of liquid into a separatory funnel and adding 3 serial aliquots of dichloromethane. Samples receive a single extraction at pH 7 to recover base / neutral analytes and two extractions at pH < 2 to recover acidic analytes. QC samples are prepared by spiking organic free water with target analytes and extracting as per samples.
AN311/AN312	Mercury by Cold Vapour AAS in Waters: Mercury ions are reduced by stannous chloride reagent in acidic solution to elemental mercury. This mercury vapour is purged by nitrogen into a cold cell in an atomic absorption spectrometer or mercury analyser. Quantification is made by comparing absorbances to those of the calibration standards. Reference APHA 3112/3500.
AN318	Determination of elements at trace level in waters by ICP-MS technique, in accordance with USEPA 6020A.
AN403	Total Recoverable Hydrocarbons: Determination of Hydrocarbons by gas chromatography after a solvent extraction. Detection is by flame ionisation detector (FID) that produces an electronic signal in proportion to the combustible matter passing through it. Total Recoverable Hydrocarbons (TRH) are routinely reported as four alkane groupings based on the carbon chain length of the compounds: C6-C9, C10-C14, C15-C28 and C29-C36 and in recognition of the NEPM 1999 (2013), >C10-C16 (F2), >C16-C34 (F3) and >C34-C40 (F4). F2 is not corrected for Naphthalene.
AN403	Additionally, the volatile C6-C9/C6-C10 fractions may be determined by a purge and trap technique and GC/MS because of the potential for volatiles loss. Total Petroleum Hydrocarbons (TPH) follows the same method of analysis after silica gel cleanup of the solvent extract. Aliphatic/Aromatic Speciation follows the same method of analysis after fractionation of the solvent extract over silica with differential polarity of the eluent solvents.
AN403	The GC/FID method is not well suited to the analysis of refined high boiling point materials (ie lubricating oils or greases) but is particularly suited for measuring diesel, kerosene and petrol if care to control volatility is taken. This method will detect naturally occurring hydrocarbons, lipids, animal fats, phenols and PAHs if they are present at sufficient levels, dependant on the use of specific cleanup/fractionation techniques. Reference USEPA 3510B, 8015B.
AN420	(SVOCs) including OC, OP, PCB, Herbicides, PAH, Phthalates and Speciated Phenols (etc) in soils, sediments and waters are determined by GCMS/ECD technique following appropriate solvent extraction process (Based on USEPA 3500C and 8270D).
AN433/AN434	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.
AN433/AN434/AN410	VOCs and C6-C9 Hydrocarbons by GC-MS P&T: VOC`s are volatile organic compounds. The sample is presented to a gas chromatograph via a purge and trap (P&T) concentrator and autosampler and is detected with a Mass Spectrometer (MSD). Solid samples are initially extracted with methanol whilst liquid samples are processed directly. References: USEPA 5030B, 8020A, 8260.

FOOTNOTES

IS	Insufficient sample for analysis.	LOR	Limit of Reporting
LNR	Sample listed, but not received.	↑↓	Raised or Lowered Limit of Reporting
*	This analysis is not covered by the scope of accreditation.	QFH	QC result is above the upper tolerance
		QFL	QC result is below the lower tolerance
**	Indicative data, theoretical holding time exceeded.	-	The sample was not analysed for this analyte
^	Performed by outside laboratory.	NVL	Not Validated

Samples analysed as received.
Solid samples expressed on a dry weight basis.

Some totals may not appear to add up because the total is rounded after adding up the raw values.

The QC criteria are subject to internal review according to the SGS QAQC plan and may be provided on request or alternatively can be found here:
http://www.sgs.com.au.pv.sgsv3/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

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STATEMENT OF QA/QC PERFORMANCE

SE129745 R0

CLIENT DETAILS

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Order Number	**E22232**
Samples	5

LABORATORY DETAILS

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SGS Reference	SE129745 R0
Report Number	0000087700
Date Reported	24 Jul 2014

COMMENTS

All the laboratory data for each environmental matrix was compared to SGS Environmental Services' stated Data Quality Objectives (DQO). Comments arising from the comparison were made and are reported below.

The data relating to sampling was taken from the Chain of Custody document and was supplied by the Client.
This QA/QC Statement must be read in conjunction with the referenced Analytical Report.
The Statement and the Analytical Report must not be reproduced except in full.

All Data Quality Objectives were met (within the SGS Alexandria Environmental laboratory).

SAMPLE SUMMARY

Sample counts by matrix	5 Waters	Type of documentation received	COC
Date documentation received	17/7/2014	Samples received in good order	Yes
Samples received without headspace	Yes	Sample temperature upon receipt	3.7°C
Sample container provider	SGS	Turnaround time requested	Standard
Samples received in correct containers	Yes	Sufficient sample for analysis	Yes
Sample cooling method	Ice Bricks	Samples clearly labelled	Yes
Complete documentation received	Yes		

HOLDING TIME SUMMARY

SE129745 R0

SGS holding time criteria are drawn from current regulations and are highly dependent on sample container preservation as specified in the SGS "Field Sampling Guide for Containers and Holding Time" (ref: GU-(AU)-ENV.001). Soil samples guidelines are derived from NEPM "Schedule B(3) Guideline on Laboratory Analysis of Potentially Contaminated Soils". Water sample guidelines are derived from "AS/NZS 5667.1 : 1998 Water Quality - sampling part 1" and APHA "Standard Methods for the Examination of Water and Wastewater" 21st edition 2005.

Extraction and analysis holding time due dates listed are calculated from the date sampled, although holding times may be extended after laboratory extraction for some analytes. The due dates are the suggested dates that samples may be held before extraction or analysis and still be considered valid.

Extraction and analysis dates are shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria. If the sampled date is not supplied then compliance with criteria cannot be determined. If the received date is after one or both due dates then holding time will fail by default.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW1-1	SE129745.001	LB061217	16 Jul 2014	17 Jul 2014	13 Aug 2014	23 Jul 2014	13 Aug 2014	24 Jul 2014
MW2-1	SE129745.002	LB061217	16 Jul 2014	17 Jul 2014	13 Aug 2014	23 Jul 2014	13 Aug 2014	24 Jul 2014
MW3-1	SE129745.003	LB061217	16 Jul 2014	17 Jul 2014	13 Aug 2014	23 Jul 2014	13 Aug 2014	24 Jul 2014
MW5-1	SE129745.004	LB061217	16 Jul 2014	17 Jul 2014	13 Aug 2014	23 Jul 2014	13 Aug 2014	24 Jul 2014
MWB-1	SE129745.005	LB061217	16 Jul 2014	17 Jul 2014	13 Aug 2014	23 Jul 2014	13 Aug 2014	24 Jul 2014

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW1-1	SE129745.001	LB061013	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	24 Jul 2014
MW2-1	SE129745.002	LB061013	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	24 Jul 2014
MW3-1	SE129745.003	LB061013	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	24 Jul 2014
MW5-1	SE129745.004	LB061013	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	24 Jul 2014
MWB-1	SE129745.005	LB061013	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	24 Jul 2014

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW1-1	SE129745.001	LB061205	16 Jul 2014	17 Jul 2014	12 Jan 2015	23 Jul 2014	12 Jan 2015	24 Jul 2014
MW2-1	SE129745.002	LB061205	16 Jul 2014	17 Jul 2014	12 Jan 2015	23 Jul 2014	12 Jan 2015	24 Jul 2014
MW3-1	SE129745.003	LB061205	16 Jul 2014	17 Jul 2014	12 Jan 2015	23 Jul 2014	12 Jan 2015	24 Jul 2014
MW5-1	SE129745.004	LB061205	16 Jul 2014	17 Jul 2014	12 Jan 2015	23 Jul 2014	12 Jan 2015	24 Jul 2014
MWB-1	SE129745.005	LB061205	16 Jul 2014	17 Jul 2014	12 Jan 2015	23 Jul 2014	12 Jan 2015	24 Jul 2014

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW1-1	SE129745.001	LB061013	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	24 Jul 2014
MW2-1	SE129745.002	LB061013	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	24 Jul 2014
MW3-1	SE129745.003	LB061013	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	24 Jul 2014
MW5-1	SE129745.004	LB061013	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	24 Jul 2014
MWB-1	SE129745.005	LB061013	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	24 Jul 2014

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW1-1	SE129745.001	LB061007	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	22 Jul 2014
MW2-1	SE129745.002	LB061007	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	22 Jul 2014
MW3-1	SE129745.003	LB061007	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	22 Jul 2014
MW5-1	SE129745.004	LB061007	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	22 Jul 2014
MWB-1	SE129745.005	LB061007	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	22 Jul 2014

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Name	Sample No.	QC Ref	Sampled	Received	Extraction Due	Extracted	Analysis Due	Analysed
MW1-1	SE129745.001	LB061007	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	22 Jul 2014
MW2-1	SE129745.002	LB061007	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	22 Jul 2014
MW3-1	SE129745.003	LB061007	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	22 Jul 2014
MW5-1	SE129745.004	LB061007	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	22 Jul 2014
MWB-1	SE129745.005	LB061007	16 Jul 2014	17 Jul 2014	23 Jul 2014	18 Jul 2014	27 Aug 2014	22 Jul 2014

Surrogate results are evaluated against upper and lower limit criteria established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). At least two of three routine level soil sample surrogate spike recoveries for BTEX/VOC are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as an acceptance criterion. Water sample surrogate spike recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion.

Result is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
2-fluorobiphenyl (Surrogate)	MW1-1	SE129745.001	%	40 - 130%	80
	MW2-1	SE129745.002	%	40 - 130%	86
	MW3-1	SE129745.003	%	40 - 130%	80
	MW5-1	SE129745.004	%	40 - 130%	72
d14-p-terphenyl (Surrogate)	MW1-1	SE129745.001	%	40 - 130%	112
	MW2-1	SE129745.002	%	40 - 130%	106
	MW3-1	SE129745.003	%	40 - 130%	110
	MW5-1	SE129745.004	%	40 - 130%	108
d5-nitrobenzene (Surrogate)	MW1-1	SE129745.001	%	40 - 130%	114
	MW2-1	SE129745.002	%	40 - 130%	110
	MW3-1	SE129745.003	%	40 - 130%	102
	MW5-1	SE129745.004	%	40 - 130%	100

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	MW1-1	SE129745.001	%	40 - 130%	111
	MW2-1	SE129745.002	%	40 - 130%	107
	MW3-1	SE129745.003	%	40 - 130%	113
	MW5-1	SE129745.004	%	40 - 130%	116
	MWB-1	SE129745.005	%	40 - 130%	87
d4-1,2-dichloroethane (Surrogate)	MW1-1	SE129745.001	%	40 - 130%	86
	MW2-1	SE129745.002	%	40 - 130%	113
	MW3-1	SE129745.003	%	40 - 130%	92
	MW5-1	SE129745.004	%	40 - 130%	98
	MWB-1	SE129745.005	%	40 - 130%	109
d8-toluene (Surrogate)	MW1-1	SE129745.001	%	40 - 130%	100
	MW2-1	SE129745.002	%	40 - 130%	80
	MW3-1	SE129745.003	%	40 - 130%	85
	MW5-1	SE129745.004	%	40 - 130%	95
	MWB-1	SE129745.005	%	40 - 130%	106
Dibromofluoromethane (Surrogate)	MW1-1	SE129745.001	%	40 - 130%	85
	MW2-1	SE129745.002	%	40 - 130%	112
	MW3-1	SE129745.003	%	40 - 130%	84
	MW5-1	SE129745.004	%	40 - 130%	103
	MWB-1	SE129745.005	%	40 - 130%	92

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Parameter	Sample Name	Sample Number	Units	Criteria	Recovery %
Bromofluorobenzene (Surrogate)	MW1-1	SE129745.001	%	60 - 130%	89
	MW2-1	SE129745.002	%	60 - 130%	98
	MW3-1	SE129745.003	%	60 - 130%	93
	MW5-1	SE129745.004	%	60 - 130%	88
	MWB-1	SE129745.005	%	60 - 130%	87
d4-1,2-dichloroethane (Surrogate)	MW1-1	SE129745.001	%	60 - 130%	105
	MW2-1	SE129745.002	%	60 - 130%	112
	MW3-1	SE129745.003	%	60 - 130%	96
	MW5-1	SE129745.004	%	60 - 130%	98
	MWB-1	SE129745.005	%	60 - 130%	109
d8-toluene (Surrogate)	MW1-1	SE129745.001	%	60 - 130%	83
	MW2-1	SE129745.002	%	60 - 130%	89
	MW3-1	SE129745.003	%	60 - 130%	98
	MW5-1	SE129745.004	%	60 - 130%	100
	MWB-1	SE129745.005	%	60 - 130%	106
Dibromofluoromethane (Surrogate)	MW1-1	SE129745.001	%	60 - 130%	103
	MW2-1	SE129745.002	%	60 - 130%	110
	MW3-1	SE129745.003	%	60 - 130%	100
	MW5-1	SE129745.004	%	60 - 130%	105
	MWB-1	SE129745.005	%	60 - 130%	92

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Sample Number	Parameter	Units	LOR	Result
LB061217.001	Mercury	mg/L	0.0001	<0.0001

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result
LB061013.001		Naphthalene	µg/L	0.1	<0.1
		2-methylnaphthalene	µg/L	0.1	<0.1
		1-methylnaphthalene	µg/L	0.1	<0.1
		Acenaphthylene	µg/L	0.1	<0.1
		Acenaphthene	µg/L	0.1	<0.1
		Fluorene	µg/L	0.1	<0.1
		Phenanthrene	µg/L	0.1	<0.1
		Anthracene	µg/L	0.1	<0.1
		Fluoranthene	µg/L	0.1	<0.1
		Pyrene	µg/L	0.1	<0.1
		Benzo(a)anthracene	µg/L	0.1	<0.1
		Chrysene	µg/L	0.1	<0.1
		Benzo(a)pyrene	µg/L	0.1	<0.1
		Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1
		Dibenzo(a&h)anthracene	µg/L	0.1	<0.1
		Benzo(ghi)perylene	µg/L	0.1	<0.1
	Surrogates	d5-nitrobenzene (Surrogate)	%	-	114
		2-fluorobiphenyl (Surrogate)	%	-	112
		d14-p-terphenyl (Surrogate)	%	-	106

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number	Parameter	Units	LOR	Result
LB061205.001	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5
LB061205.025	Arsenic, As	µg/L	1	<1
	Cadmium, Cd	µg/L	0.1	<0.1
	Chromium, Cr	µg/L	1	<1
	Copper, Cu	µg/L	1	<1
	Lead, Pb	µg/L	1	<1
	Nickel, Ni	µg/L	1	<1
	Zinc, Zn	µg/L	5	<5

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number	Parameter	Units	LOR	Result
LB061013.001	TRH C10-C14	µg/L	50	<50
	TRH C15-C28	µg/L	200	<200
	TRH C29-C36	µg/L	200	<200
	TRH C37-C40	µg/L	200	<200

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB061007.001	Fumigants	2,2-dichloropropane	µg/L	0.5	<0.5
		1,2-dichloropropane	µg/L	0.5	<0.5
		cis-1,3-dichloropropene	µg/L	0.5	<0.5
		trans-1,3-dichloropropene	µg/L	0.5	<0.5
		1,2-dibromoethane (EDB)	µg/L	0.5	<0.5
	Halogenated Aliphatics	Dichlorodifluoromethane (CFC-12)	µg/L	5	<5
		Chloromethane	µg/L	5	<5
		Vinyl chloride (Chloroethene)	µg/L	0.3	<0.3
		Bromomethane	µg/L	10	<10
		Chloroethane	µg/L	5	<5
		Trichlorofluoromethane	µg/L	1	<1

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB061007.001	Halogenated Aliphatics	Iodomethane	µg/L	5	<5
		1,1-dichloroethene	µg/L	0.5	<0.5
		Dichloromethane (Methylene chloride)	µg/L	5	<5
		Allyl chloride	µg/L	2	<2
		trans-1,2-dichloroethene	µg/L	0.5	<0.5
		1,1-dichloroethane	µg/L	0.5	<0.5
		cis-1,2-dichloroethene	µg/L	0.5	<0.5
		Bromochloromethane	µg/L	0.5	<0.5
		1,2-dichloroethane	µg/L	0.5	<0.5
		1,1,1-trichloroethane	µg/L	0.5	<0.5
		1,1-dichloropropene	µg/L	0.5	<0.5
		Carbon tetrachloride	µg/L	0.5	<0.5
		Dibromomethane	µg/L	0.5	<0.5
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	<0.5
		1,1,2-trichloroethane	µg/L	0.5	<0.5
		1,3-dichloropropane	µg/L	0.5	<0.5
		Tetrachloroethene (Perchloroethylene,PCE)	µg/L	0.5	<0.5
		1,1,1,2-tetrachloroethane	µg/L	0.5	<0.5
		cis-1,4-dichloro-2-butene	µg/L	1	<1
		1,1,2,2-tetrachloroethane	µg/L	0.5	<0.5
		1,2,3-trichloropropane	µg/L	0.5	<0.5
		trans-1,4-dichloro-2-butene	µg/L	1	<1
		1,2-dibromo-3-chloropropane	µg/L	0.5	<0.5
		Hexachlorobutadiene	µg/L	0.5	<0.5
	Halogenated Aromatics	Chlorobenzene	µg/L	0.5	<0.5
		Bromobenzene	µg/L	0.5	<0.5
		2-chlorotoluene	µg/L	0.5	<0.5
		4-chlorotoluene	µg/L	0.5	<0.5
		1,3-dichlorobenzene	µg/L	0.5	<0.5
		1,4-dichlorobenzene	µg/L	0.3	<0.3
		1,2-dichlorobenzene	µg/L	0.5	<0.5
		1,2,4-trichlorobenzene	µg/L	0.5	<0.5
		1,2,3-trichlorobenzene	µg/L	0.5	<0.5
	Monocyclic Aromatic Hydrocarbons	Benzene	µg/L	0.5	<0.5
		Toluene	µg/L	0.5	<0.5
		Ethylbenzene	µg/L	0.5	<0.5
		m/p-xylene	µg/L	1	<1
		o-xylene	µg/L	0.5	<0.5
		Styrene (Vinyl benzene)	µg/L	0.5	<0.5
		Isopropylbenzene (Cumene)	µg/L	0.5	<0.5
		n-propylbenzene	µg/L	0.5	<0.5
		1,3,5-trimethylbenzene	µg/L	0.5	<0.5
		tert-butylbenzene	µg/L	0.5	<0.5
		1,2,4-trimethylbenzene	µg/L	0.5	<0.5
		sec-butylbenzene	µg/L	0.5	<0.5
		p-isopropyltoluene	µg/L	0.5	<0.5
		n-butylbenzene	µg/L	0.5	<0.5
	Nitrogenous Compounds	Acrylonitrile	µg/L	0.5	<0.5
	Oxygenated Compounds	Acetone (2-propanone)	µg/L	10	<10
		MtBE (Methyl-tert-butyl ether)	µg/L	2	<2
		Vinyl acetate	µg/L	10	<10
		MEK (2-butanone)	µg/L	10	<10
		MIBK (4-methyl-2-pentanone)	µg/L	5	<5
		2-hexanone (MBK)	µg/L	5	<5
	Polycyclic VOCs	Naphthalene	µg/L	0.5	<0.5
	Sulphonated	Carbon disulfide	µg/L	2	<2
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	113
		d4-1,2-dichloroethane (Surrogate)	%	-	116
		d8-toluene (Surrogate)	%	-	94
		Bromofluorobenzene (Surrogate)	%	-	91
	Trihalomethanes	Chloroform (THM)	µg/L	0.5	<0.5

Blank results are evaluated against the limit of reporting (LOR), for the chosen method and its associated instrumentation, typically 2.5 times the statistically determined method detection limit (MDL).

Result is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

VOCs in Water (continued)

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result
LB061007.001	Trihalomethanes	Bromodichloromethane (THM)	µg/L	0.5	<0.5
		Dibromochloromethane (THM)	µg/L	0.5	<0.5
		Bromoform (THM)	µg/L	0.5	<0.5

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result
LB061007.001		TRH C6-C9	µg/L	40	<40
	Surrogates	Dibromofluoromethane (Surrogate)	%	-	92
		d4-1,2-dichloroethane (Surrogate)	%	-	88
		d8-toluene (Surrogate)	%	-	102
		Bromofluorobenzene (Surrogate)	%	-	118

Duplicates are calculated as Relative Percentage Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129746.005	LB061217.014	Mercury	µg/L	0.0001	0	0	200	0
SE129749.011	LB061217.018	Mercury	µg/L	0.0001	<0.0001	<0.0001	200	0

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129745.001	LB061013.006		Naphthalene	µg/L	0.1	0.3	0.3	61	13
			2-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
			1-methylnaphthalene	µg/L	0.1	<0.1	<0.1	200	0
			Acenaphthylene	µg/L	0.1	<0.1	<0.1	200	0
			Acenaphthene	µg/L	0.1	0.2	0.2	87	6
			Fluorene	µg/L	0.1	0.2	0.2	80	10
			Phenanthrene	µg/L	0.1	0.4	0.4	54	5
			Anthracene	µg/L	0.1	0.1	<0.1	135	0
			Fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(a)anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Chrysene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(b&j)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(k)fluoranthene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(a)pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Indeno(1,2,3-cd)pyrene	µg/L	0.1	<0.1	<0.1	200	0
			Dibenzo(a&h)anthracene	µg/L	0.1	<0.1	<0.1	200	0
			Benzo(ghi)perylene	µg/L	0.1	<0.1	<0.1	200	0
		Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.6	0.6	30	2
			2-fluorobiphenyl (Surrogate)	µg/L	-	0.4	0.4	30	0
			d14-p-terphenyl (Surrogate)	µg/L	-	0.6	0.6	30	9

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Original	Duplicate	Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129746.005	LB061205.014	Arsenic, As	µg/L	1	1.4	1.379	87	2
		Cadmium, Cd	µg/L	0.1	0.051	0.05	200	0
		Chromium, Cr	µg/L	1	0.097	0.186	200	0
		Copper, Cu	µg/L	1	1.199	1.17	99	2
		Lead, Pb	µg/L	1	0.055	0.06	200	0
		Nickel, Ni	µg/L	1	15.298	15.027	22	2
		Zinc, Zn	µg/L	5	49.818	47.572	25	5
SE129853.005	LB061205.028	Arsenic, As	µg/L	1	<1	<1	200	0
		Copper, Cu	µg/L	1	1	1	95	1
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	42	42	17	1
		Zinc, Zn	µg/L	5	<5	<5	200	0
SE129853.009	LB061205.033	Arsenic, As	µg/L	1	2	2	79	0
		Copper, Cu	µg/L	1	1	1	111	0
		Lead, Pb	µg/L	1	<1	<1	200	0
		Nickel, Ni	µg/L	1	72	73	16	1
		Zinc, Zn	µg/L	5	<5	<5	200	0

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Original	Duplicate		Parameter	Units	LOR	Original	Duplicate	Criteria %	RPD %
SE129745.001	LB061013.006		TRH C10-C14	µg/L	50	<50	<50	200	0
			TRH C15-C28	µg/L	200	<200	<200	200	0
			TRH C29-C36	µg/L	200	<200	<200	200	0
			TRH C37-C40	µg/L	200	<200	<200	200	0
			TRH C10-C36	µg/L	450	<450	<450	200	0
			TRH C10-C40	µg/L	650	<650	<650	200	0
		TRH F Bands	TRH >C10-C16 (F2)	µg/L	60	<60	<60	200	0
			TRH >C16-C34 (F3)	µg/L	500	<500	<500	200	0
			TRH >C34-C40 (F4)	µg/L	500	<500	<500	200	0

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

PAH (Polynuclear Aromatic Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN420

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB061013.002		Naphthalene	µg/L	0.1	38	40	60 - 140	94
		Acenaphthylene	µg/L	0.1	38	40	60 - 140	94
		Acenaphthene	µg/L	0.1	37	40	60 - 140	92
		Phenanthrene	µg/L	0.1	37	40	60 - 140	93
		Anthracene	µg/L	0.1	39	40	60 - 140	98
		Fluoranthene	µg/L	0.1	34	40	60 - 140	85
		Pyrene	µg/L	0.1	35	40	60 - 140	87
		Benzo(a)pyrene	µg/L	0.1	42	40	60 - 140	104
	Surrogates	d5-nitrobenzene (Surrogate)	µg/L	-	0.5	0.5	40 - 130	104
		2-fluorobiphenyl (Surrogate)	µg/L	-	0.6	0.5	40 - 130	110
		d14-p-terphenyl (Surrogate)	µg/L	-	0.5	0.5	40 - 130	108

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB061205.002		Arsenic, As	µg/L	1	18	20	80 - 120	91
		Cadmium, Cd	µg/L	0.1	19	20	80 - 120	95
		Chromium, Cr	µg/L	1	18	20	80 - 120	92
		Copper, Cu	µg/L	1	19	20	80 - 120	94
		Lead, Pb	µg/L	1	19	20	80 - 120	97
		Nickel, Ni	µg/L	1	19	20	80 - 120	96
		Zinc, Zn	µg/L	5	19	20	80 - 120	93
LB061205.026		Arsenic, As	µg/L	1	18	20	80 - 120	92
		Cadmium, Cd	µg/L	0.1	19	20	80 - 120	97
		Chromium, Cr	µg/L	1	19	20	80 - 120	93
		Copper, Cu	µg/L	1	18	20	80 - 120	92
		Lead, Pb	µg/L	1	20	20	80 - 120	99
		Nickel, Ni	µg/L	1	19	20	80 - 120	96
		Zinc, Zn	µg/L	5	18	20	80 - 120	92

TRH (Total Recoverable Hydrocarbons) in Water

Method: ME-(AU)-[ENV]AN403

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB061013.002		TRH C10-C14	µg/L	50	1100	1200	60 - 140	91
		TRH C15-C28	µg/L	200	1100	1200	60 - 140	94
		TRH C29-C36	µg/L	200	1100	1200	60 - 140	94
	TRH F Bands	TRH >C10-C16 (F2)	µg/L	60	1100	1200	60 - 140	93
		TRH >C16-C34 (F3)	µg/L	500	1100	1200	60 - 140	96
		TRH >C34-C40 (F4)	µg/L	500	580	600	60 - 140	97

VOCs in Water

Method: ME-(AU)-[ENV]AN433/AN434

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB061007.002	Halogenated	1,1-dichloroethene	µg/L	0.5	52	45.45	60 - 140	114
	Aliphatics	1,2-dichloroethane	µg/L	0.5	49	45.45	60 - 140	107
		Trichloroethene (Trichloroethylene,TCE)	µg/L	0.5	46	45.45	60 - 140	101
	Halogenated	Chlorobenzene	µg/L	0.5	45	45.45	60 - 140	98
	Monocyclic	Benzene	µg/L	0.5	52	45.45	60 - 140	113
	Aromatic	Toluene	µg/L	0.5	45	45.45	60 - 140	99
		Ethylbenzene	µg/L	0.5	46	45.45	60 - 140	101
		m/p-xylene	µg/L	1	93	90.9	60 - 140	102
		o-xylene	µg/L	0.5	45	45.45	60 - 140	98
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.9	5	60 - 140	98
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.7	5	60 - 140	95
		d8-toluene (Surrogate)	µg/L	-	4.5	5	60 - 140	89
		Bromofluorobenzene (Surrogate)	µg/L	-	4.8	5	60 - 140	96
	Trihalomethan	Chloroform (THM)	µg/L	0.5	28	45.45	60 - 140	61

Volatile Petroleum Hydrocarbons in Water

Method: ME-(AU)-[ENV]AN433/AN434/AN410

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB061007.002		TRH C6-C10	µg/L	50	1000	946.63	60 - 140	106
		TRH C6-C9	µg/L	40	820	818.71	60 - 140	100
	Surrogates	Dibromofluoromethane (Surrogate)	µg/L	-	4.9	5	60 - 140	98
		d4-1,2-dichloroethane (Surrogate)	µg/L	-	4.9	5	60 - 140	98
		d8-toluene (Surrogate)	µg/L	-	5.0	5	60 - 140	99
		Bromofluorobenzene (Surrogate)	µg/L	-	5.1	5	60 - 140	102

Laboratory Control Standard (LCS) results are evaluated against an expected result, typically the concentration of analyte spiked into the control during the sample preparation stage, producing a percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA /QC plan (Ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended dagger symbol (†) when outside suggested criteria.

Volatile Petroleum Hydrocarbons in Water (continued) — **Method: ME-(AU)-[ENV]AN433/AN434/AN410**

Sample Number		Parameter	Units	LOR	Result	Expected	Criteria %	Recovery %
LB061007.002	VPH F Bands	TRH C6-C10 minus BTEX (F1)	µg/L	50	720	639.67	60 - 140	113

Matrix Spike (MS) results are evaluated as the percentage recovery of an expected result, typically the concentration of analyte spiked into a field sub -sample during the sample preparation stage. The original sample's result is subtracted from the sub -sample result before determining the percentage recovery. The criteria applied to the percentage recovery is established in the SGS QA/QC plan (ref: MP-(AU)-[ENV]QU-022). For more information refer to the footnotes in the concluding page of this report.

Recovery is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

Mercury (dissolved) in Water

Method: ME-(AU)-[ENV]AN311/AN312

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129745.001	LB061217.004	Mercury	mg/L	0.0001	0.0069	<0.0001	0.008	86

Trace Metals (Dissolved) in Water by ICPMS

Method: ME-(AU)-[ENV]AN318

QC Sample	Sample Number	Parameter	Units	LOR	Result	Original	Spike	Recovery%
SE129745.001	LB061205.004	Arsenic, As	µg/L	1	16	<1	20	81
		Cadmium, Cd	µg/L	0.1	18	0.4	20	87
		Chromium, Cr	µg/L	1	16	<1	20	80
		Copper, Cu	µg/L	1	26	12	20	71
		Lead, Pb	µg/L	1	17	<1	20	85
		Nickel, Ni	µg/L	1	110	93	20	78
		Zinc, Zn	µg/L	5	280	260	20	72
SE129853.007	LB061205.030	Arsenic, As	µg/L	1	25	7	20	89
		Copper, Cu	µg/L	1	17	2	20	74
		Lead, Pb	µg/L	1	19	<1	20	93
		Nickel, Ni	µg/L	1	110	98	20	77
		Zinc, Zn	µg/L	5	22	7	20	74

MATRIX SPIKE DUPLICATES

SE129745 R0

Matrix spike duplicates are calculated as Relative Percent Difference (RPD) using the formula: RPD = | OriginalResult - ReplicateResult | x 100 / Mean

The original result is the analyte concentration of the matrix spike. The Duplicate result is the analyte concentration of the matrix spike duplicate.

The RPD is evaluated against the Maximum Allowable Difference (MAD) criteria and can be graphically represented by a curve calculated from the Statistical Detection Limit (SDL) and Limiting Repeatability (LR) using the formula: MAD = 100 x SDL / Mean + LR

Where the Maximum Allowable Difference evaluates to a number larger than 200 it is displayed as 200.

RPD is shown in **Green** when within suggested criteria or **Red** with an appended reason identifer when outside suggested criteria. Refer to the footnotes section at the end of this report for failure reasons.

No matrix spike duplicates were required for this job.

Samples analysed as received.

Solid samples expressed on a dry weight basis.

QC criteria are subject to internal review according to the SGS QA/QC plan and may be provided on request or alternatively can be found here:
http://www.sgs.com.au/~/media/Local/Australia/Documents/Technical%20Documents/MP-AU-ENV-QU-022%20QA%20QC%20Plan.pdf

*	Non-accredited analysis.
-	Sample not analysed for this analyte.
^	Analysis performed by external laboratory.

IS	Insufficient sample for analysis.
LNR	Sample listed, but not received.
LOR	Limit of reporting.
QFH	QC result is above the upper tolerance.
QFL	QC result is below the lower tolerance.

①	At least 2 of 3 surrogates are within acceptance criteria.
②	RPD failed acceptance criteria due to sample heterogeneity.
③	Results less than 5 times LOR preclude acceptance criteria for RPD.
④	Recovery failed acceptance criteria due to matrix interference.
⑤	Recovery failed acceptance criteria due to the presence of significant concentration of analyte (i.e. the concentration of analyte exceeds the spike level).
⑥	LOR was raised due to sample matrix interference.
⑦	LOR was raised due to dilution of significantly high concentration of analyte in sample.
⑧	Reanalysis of sample in duplicate confirmed sample heterogeneity and inconsistency of results.
⑨	Recovery failed acceptance criteria due to sample heterogeneity.
⑩	LOR was raised due to high conductivity of the sample (required dilution).
†	Refer to Analytical Report comments for further information.

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CERTIFICATE OF ANALYSIS 113265

Client:

Environmental Investigations
Suite 6.01, 55 Miller Street
Pyrmont
NSW 2009

Attention: Sari Erm

Sample log in details:

Your Reference:	**E22232, Ashbury**
No. of samples:	1 Water
Date samples received / completed instructions received	17/07/2014 / 17/07/2014

Analysis Details:

Please refer to the following pages for results, methodology summary and quality control data.
Samples were analysed as received from the client. Results relate specifically to the samples as received.
Results are reported on a dry weight basis for solids and on an as received basis for other matrices.
Please refer to the last page of this report for any comments relating to the results.

Report Details:

Date results requested by: / Issue Date:	24/07/14 / 22/07/14
Date of Preliminary Report:	Not Issued

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Results Approved By:

Jacinta Hurst
Laboratory Manager

vTRH(C6-C10)/BTEXN in Water		
Our Reference:	UNITS	113265-1
Your Reference	----------	MW1-1
Date Sampled	----------	16/07/2014
Type of sample		Water
Date extracted	-	18/07/2014
Date analysed	-	19/07/2014
TRHC6 - C9	µg/L	<10
TRHC6 - C10	µg/L	<10
TRHC6 - C10 less BTEX (F1)	µg/L	<10
Benzene	µg/L	<1
Toluene	µg/L	<1
Ethylbenzene	µg/L	<1
m+p-xylene	µg/L	<2
o-xylene	µg/L	<1
Naphthalene	µg/L	<1
Surrogate Dibromofluoromethane	%	101
Surrogate toluene-d8	%	99
Surrogate 4-BFB	%	96

svTRH (C10-C40) in Water		
Our Reference:	UNITS	113265-1
Your Reference	----------	MW1-1
Date Sampled	----------	16/07/2014
Type of sample		Water
Date extracted	-	18/07/2014
Date analysed	-	18/07/2014
TRHC$_{10}$ - C$_{14}$	µg/L	<50
TRHC$_{15}$ - C$_{28}$	µg/L	<100
TRHC$_{29}$ - C$_{36}$	µg/L	<100
TRH>C$_{10}$ - C$_{16}$	µg/L	55
TRH>C$_{10}$ - C$_{16}$ less Naphthalene (F2)	µg/L	55
TRH>C$_{16}$ - C$_{34}$	µg/L	<100
TRH>C$_{34}$ - C$_{40}$	µg/L	<100
Surrogate o-Terphenyl	%	115

HM in water - dissolved		
Our Reference:	UNITS	113265-1
Your Reference	----------	MW1-1
Date Sampled	----------	16/07/2014
Type of sample		Water
Date prepared	-	18/07/2014
Date analysed	-	18/07/2014
Arsenic-Dissolved	µg/L	<1
Cadmium-Dissolved	µg/L	0.4
Chromium-Dissolved	µg/L	<1
Copper-Dissolved	µg/L	13
Lead-Dissolved	µg/L	<1
Mercury-Dissolved	µg/L	<0.05
Nickel-Dissolved	µg/L	100
Zinc-Dissolved	µg/L	330

Method ID	Methodology Summary
Org-016	Soil samples are extracted with methanol and spiked into water prior to analysing by purge and trap GC-MS. Water samples are analysed directly by purge and trap GC-MS. F1 = (C6-C10)-BTEX as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater.
Org-013	Water samples are analysed directly by purge and trap GC-MS.
Org-003	Soil samples are extracted with Dichloromethane/Acetone and waters with Dichloromethane and analysed by GC-FID. F2 = (>C10-C16)-Naphthalene as per NEPM B1 Guideline on Investigation Levels for Soil and Groundwater (HSLs Tables 1A (3, 4)). Note Naphthalene is determined from the VOC analysis.
Metals-022 ICP-MS	Determination of various metals by ICP-MS.
Metals-021 CV-AAS	Determination of Mercury by Cold Vapour AAS.

QUALITY CONTROL vTRH(C6-C10)/BTEXN in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			18/07/2014	[NT]	[NT]	LCS-W1	18/07/2014
Date analysed	-			19/07/2014	[NT]	[NT]	LCS-W1	19/07/2014
TRH C_6 - C_9	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	95%
TRH C_6 - C_{10}	µg/L	10	Org-016	<10	[NT]	[NT]	LCS-W1	95%
Benzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	95%
Toluene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	94%
Ethylbenzene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	95%
m+p-xylene	µg/L	2	Org-016	<2	[NT]	[NT]	LCS-W1	95%
o-xylene	µg/L	1	Org-016	<1	[NT]	[NT]	LCS-W1	96%
Naphthalene	µg/L	1	Org-013	<1	[NT]	[NT]	[NR]	[NR]
Surrogate Dibromofluoromethane	%		Org-016	99	[NT]	[NT]	LCS-W1	98%
Surrogate toluene-d8	%		Org-016	99	[NT]	[NT]	LCS-W1	100%
Surrogate 4-BFB	%		Org-016	96	[NT]	[NT]	LCS-W1	97%

QUALITY CONTROL svTRH (C10-C40) in Water	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date extracted	-			18/07/2014	[NT]	[NT]	LCS-W1	18/07/2014
Date analysed	-			18/07/2014	[NT]	[NT]	LCS-W1	18/07/2014
TRH C_{10} - C_{14}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	99%
TRH C_{15} - C_{28}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	99%
TRH C_{29} - C_{36}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	100%
TRH>C_{10} - C_{16}	µg/L	50	Org-003	<50	[NT]	[NT]	LCS-W1	99%
TRH>C_{16} - C_{34}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	99%
TRH>C_{34} - C_{40}	µg/L	100	Org-003	<100	[NT]	[NT]	LCS-W1	100%
Surrogate o-Terphenyl	%		Org-003	97	[NT]	[NT]	LCS-W1	86%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Date prepared	-			18/07/2014	[NT]	[NT]	LCS-W1	18/07/2014
Date analysed	-			18/07/2014	[NT]	[NT]	LCS-W1	18/07/2014
Arsenic-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	106%
Cadmium-Dissolved	µg/L	0.1	Metals-022 ICP-MS	<0.1	[NT]	[NT]	LCS-W1	106%
Chromium-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	103%
Copper-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	104%
Lead-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	106%

QUALITY CONTROL HM in water - dissolved	UNITS	PQL	METHOD	Blank	Duplicate Sm#	Duplicate results Base II Duplicate II %RPD	Spike Sm#	Spike % Recovery
Mercury-Dissolved	µg/L	0.05	Metals-021 CV-AAS	<0.05	[NT]	[NT]	LCS-W1	104%
Nickel-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	105%
Zinc-Dissolved	µg/L	1	Metals-022 ICP-MS	<1	[NT]	[NT]	LCS-W1	107%

Report Comments:

Asbestos ID was analysed by Approved Identifier:	Not applicable for this job
Asbestos ID was authorised by Approved Signatory:	Not applicable for this job

INS: Insufficient sample for this test	PQL: Practical Quantitation Limit	NT: Not tested
NA: Test not required	RPD: Relative Percent Difference	NA: Test not required
<: Less than	>: Greater than	LCS: Laboratory Control Sample

Quality Control Definitions

Blank: This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.

Duplicate: This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.

Matrix Spike : A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.

LCS (Laboratory Control Sample) : This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.

Surrogate Spike: Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.
Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.
Spikes for Physical and Aggregate Tests are not applicable.
For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: <5xPQL - any RPD is acceptable; >5xPQL - 0-50% RPD is acceptable.
Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals; 60-140% for organics and 10-140% for SVOC and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

APPENDIX J
QA/QC Assessment

J1 QUALITY CONTROL PROGRAM

J1.1 INTRODUCTION

For the purpose of assessing the quality of data presented in this environmental site assessment report, EI collected field QC samples for analysis. The primary laboratory, SGS Australia Pty Ltd (SGS) and secondary laboratory, Envirolab Services Pty Ltd (Envirolab) also prepared and analysed QC samples. Details of the field and laboratory QC samples are provided, with the allowable acceptance ranges for the data presented in Table J-1.

Table J-1 Sampling Data Quality Indicators

Data Quality Objective	Data Quality Indicator	Acceptable Range
Accuracy	Field – Trip blank (laboratory prepared) Laboratory – Laboratory control spike and matrix spike	< laboratory limit of reporting (LOR) Prescribed by the laboratories
Precision	Field – Blind replicate and spilt duplicate Laboratory – Laboratory duplicate and matrix spike duplicate	< 30 % relative percentage difference (RPD [%]) Prescribed by the laboratories
Representativeness	Field – Trip blank (laboratory prepared) Laboratory – Method blank	< laboratory limit of reporting (LOR) Prescribed by the laboratories
Completeness	Completion (%)	-

J1.2 CALCULATION OF RELATIVE PERCENTAGE DIFFERENCE (RPD)

The RPD values were calculated using the following equation:

$$RPD = \frac{([C_O - C_R] \times 100)}{\frac{(C_O + C_R)}{2}}$$

C_O = Concentration obtained from the primary sample.

C_R = Concentration obtained from the blind replicate or split sample.

J2 FIELD QA/QC DATA EVALUATION

The field quality assurance/quality control (QA/QC) soil samples collected during the investigation works were as follows:

- Blind field duplicate;
- Inter laboratory duplicates; and
- Rinsate Blank.

The results of the QA/QC samples collected during the investigation phases of sampling, including the calculated RPD values between primary and duplicate samples, are presented in Table J-2.

J2.1 SOIL INVESTIGATION

J2.1.1 Blind Field Duplicate

One (1) blind field duplicate (BFD) sample was collected. The preparation of the BFD sample involved the collection of a bulk quantity of soil from the same sampling point without mixing, before dividing the material into identical sampling vessels. The duplicate sample was then presented blind to the primary laboratory (SGS) to avoid any potential analytical bias. The BFD was analysed for TPH, BTEX, selected heavy metals, with the RPD values calculated found to be within the Data Acceptance Criteria (Appendix K, Table QC5), with the exception of Lead (66.77%) for soil investigation sample BH1-1. The exceedances are considered insignificant as the differences in concentration were within 5% of the practical quantitation limits, and could be an indication of inhomogeneity of the soil material, which is common in fill layers.

J2.1.2 Inter Laboratory Duplicate

One (1) inter laboratory duplicate (ILD) sample was collected. The preparation of the ILD sample was identical to the BFD sample as described above and analysed for TPH, BTEX and selected heavy metals. The RPD values calculated for the ILD sample was found to be within the Data Acceptance Criteria.

Furthermore, soil samples were placed immediately into jars following sampling to reduce the loss of volatiles from samples. Results of soil sampling indicated that the samples collected were representative of the soils present at respective sampling locations; therefore, EI conclude that the samples collected are representative of the soils present at the respective sampling locations.

Table J-2 Quality Control Sample Results

Site: 165 Milton Street, Ashbury, NSW
Job No: E22232 AA

Sample identification	Sampled Date	Description	TRH				BTEX						Heavy Metals							
			F1*	F2**	F3 (>C_{16} - C_{34})	F4 (>C_{34} - C_{40})	Benzene	Toluene	Ethylbenzene	Xylene (total)	m/p-xylene	o-xylene	Arsenic	Cadmium	Chromium (Total)	Copper	Lead	Mercury	Nickel	Zinc
Intra-laboratory Duplicate																				
BH1-1	24.06.14	Fill Material	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.2	<0.1	4	<0.3	2.7	1.5	2	<0.01	16	7.7
B1	24.06.14	Replicate of BH1-1	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.2	<0.1	3	<0.3	2.2	1.1	1	<0.01	12	6.1
RPD			*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*28.57*	*0.00*	*20.41*	*30.77*	66.67	*0.00*	*28.57*	*23.19*
MW1-1	16.07.14	Groundwater	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.5	<1	0.4	<1	12	<1	<0.1	93	260
MWB-1	16.07.14	Replicate of MW1-1	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.5	<1	0.4	<1	13	<1	<0.1	96	280
RPD			*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*8.00*	*0.00*	*0.00*	*3.17*	*7.41*
Inter-laboratory Duplicate																				
BH1-1	24.06.14	Fill Material	<25	<25	<90	<120	<0.1	<0.1	<0.1	<0.3	<0.2	<0.1	4	<0.3	2.7	1.5	2	<0.01	16	7.7
I1	24.06.14	Replicate of BH1 - 1	<25	<50	<100	<100	<0.2	<0.5	<1	<3	<2	<1	<4	<0.4	2	2	2	<0.1	11	5
RPD			*0.00*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*0.00*	*NA*	*29.79*	*28.57*	*0.00*	*NA*	*37.04*	*42.52*
MW1-1	16.07.14	Groundwater	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.5	<1	0.4	<1	12	<1	<0.1	93	260
MWI-1	16.07.14	Replicate of MW1-1	<10	55	<100	<100	<1	<1	<1	<1.5	<2	<1	<1	0.4	<1	13	<1	<0.05	100	330
RPD			*NA*	*11.76*	*NA*	*NA*	*NA*	*NA*	*NA*	*0.00*	*NA*	*NA*	*0.00*	*0.00*	*0.00*	*8.00*	*0.00*	*NA*	*7.25*	*23.73*
Rinsate Blanks																				
RB	24.06.14	De-ionised water	<50	<60	<500	<500	<0.5	<0.5	<0.5	<1.5	<1	<0.5	<1	<0.1	<1	<1	<1	<0.1	<1	<5

52.17 Indicates values where a single result is found to be less than detection, with the duplicate sample found to be over the detection limit.
82.35 RPD exceeds 30-50% range referenced from AS4482.1 (2005)

NOTE:
All soil results are reported in mg/kg . All water results are reported in µg/L.
* - to obtain F1 subtract the sum of BTEX concentrations from the C_6-C_{10} fraction
** - to obtain F2 subtract naphthalene from the > C_{10}-C_{16} fraction

J2.1.3 Rinsate Blank

One (1) rinsate blank (RB) sample was submitted to the primary laboratory for TPH, BTEX and selected heavy metals. The RB sample results were reported below the laboratory LOR, therefore it was concluded that decontamination procedures performed during the field works had been effective.

J2.2 GROUNDWATER INVESTIGATION

The field quality assurance/quality control (QA/QC) groundwater samples collected during the groundwater investigation works were as follows:

- Blind field duplicate; and
- Inter laboratory duplicates.

The results of the QA/QC samples collected during the groundwater investigation are presented in Table J-2.

J2.2.1 Blind Field Duplicate

One (1) blind field duplicate (BFD) sample, being sample MWB-1, was collected from the primary sample MW1-1. The preparation of the BFD sample involved the involved the decanting of the groundwater collected from the respective groundwater monitoring well into two separate groups of appropriately labelled sampling containers. Volumes were split equally between the groups of sampling bottles such that the sample contained in each individual bottle, contained a similar proportion of each water volume. It should be noted that the sample was not mixed prior to decanting, in order to preserve the concentrations of volatiles potentially present within the sample. The duplicate sample was then presented blind to the primary laboratory (SGS) to avoid any potential analytical bias. The BFD was analysed for TPH, BTEX and selected heavy metals. The RPD values calculated for the majority of the analytes tested were found to be within the Data Acceptance Criteria (DAC).

J2.2.2 Inter-Laboratory Duplicate

One (1) inter laboratory duplicate (ILD) sample, being sample MWI-1, was collected from the primary sample MW1-1. The preparation of the ILD sample was identical to the BFD sample as described above and analysed for TPH, BTEX and selected heavy metals. The RPD values calculated for the ILD sample were found to be within the Data Acceptance Criteria.

J2.2.3 Assessment of Field QA/QC Data

All soil samples were classified in the field with respect to soil/fill characteristics and any observable signs of contamination based on visual and odour assessment.

All samples, including field QC samples, were transported to the primary and secondary laboratories under strict Chain-of-Custody conditions and appropriate copies of relevant documentation were included in the respective reports.

The overall completeness of documentation produced under the field program of the subject assessment was considered to be adequate for the purposes of drawing valid conclusions regarding the environmental condition of the site.

Based on the results of the field QA/QC data, EI considered the field QA/QC programme carried out during the investigation works to be appropriate and the results to be acceptable.

J3 LABORATORY QA/QC

J3.1 LABORATORY ACCREDITATION

To undertake all analytical testing, EI commissioned SGS as the primary laboratory and Envirolab as the secondary laboratory. SGS and Envirolab, both established analytical laboratories which operate in accordance with the guidelines set out in ISO/IEC Guide 25 "General requirements for the competence of calibration and testing laboratories", conducted all respective analyses using National Association Testing Authorities (NATA)-registered procedures.

In relation to contingencies, should the pre-determined DQOs not be achieved, in accordance with each laboratory's QC policy, respective tests are accordingly repeated. Should the results again fall outside the DQOs, then sample heterogeneity may be assumed and written comment will be provided to this effect on the final laboratory certificate.

J3.2 SAMPLE HOLDING TIMES

All sample holding times were generally within standard environmental protocols as tabulated in Appendix M, Tables QC1 and QC2, with the exception of sample SE129159.011 (being the Rinsate Blank Sample) for VOCs and Volatile Petroleum Hydrocarbons, which were outside the extraction due date.

J3.3 TEST METHODS AND PRACTICAL QUANTITATION LIMITS (PQLS)

Practical Quantitation Limits for the tested parameters during the assessments of soils are presented in Appendix K, Tables QC3 and QC4.

J3.4 METHOD BLANKS

Concentrations of all parameters in method blanks during the assessment were below the laboratory PQLs and were therefore within the DAC.

J3.5 LABORATORY DUPLICATE SAMPLES

The Laboratory Control Samples (LCS) for the analysis batches were generally within acceptable ranges and conformed to the DAC, with the exception of PAH for SE129163.001, Chromium for SE129371.001, Copper for SE129375.001, which were resulted from sample heterogeneity. Three duplicate surrogate tests, namely d4-1,2-dichloroethane (Surrogate) for SE129163.001, d4-1,2-dichloroethane (Surrogate) for SE129222.001, d8-toluene (Surrogate) for SE129226.001 were beyond acceptable ranges.

J3.6 LABORATORY CONTROL SAMPLES

The Laboratory Control Samples (LCS) for the analysis batches were within acceptable ranges and conformed to the DAC.

J3.7 MATRIX SPIKES

The matrix spikes of the analysis batches were within acceptable ranges and conformed to the DAC, with the exception of samples SE129369.001 which recovery in Copper exceeded the acceptance criteria due to matrix interference.

APPENDIX K
Laboratory QA/AC Policies and DQOs

Table QC1 - Containers, Preservation Requirements and Holding Times - Soil			
Parameter	Container	Preservation	Maximum Holding Time
Acid digestible metals and metalloids - Total and TCLP (As,Cd.,Cu,Cr,Ni,Pb,Zn)	Glass with Teflon Lid	Nil	6 months
Mercury	Glass with Teflon Lid	Nil	28 days
TPH / BTEX / VOC / SVOC / CHC	Glass with Teflon Lid	4°C, zero headspace	14 days
PAHs (total and TCLP)	Glass with Teflon Lid	4°C [1]	14 days
Phenols	Glass with Teflon Lid	4°C [1]	14 days
OCPs, OPPs and total PCBs	Glass with Teflon Lid	4°C [1]	14 days
Asbestos	Sealed Plastic Bag	Nil	N/A

Table QC2 - Containers, Preservation Requirements and Holding Times - Water			
Parameter	Container Volume (mL)	Preservation	Maximum Holding Time
Heavy Metals	125mL Plastic	Field filtration 0.45μm HNO_3 / 4°C	6 months
Cyanide	125mL Amber Glass	pH > 12 NaOH / 4°C	6 months
TPH (C6-C9) / BTEX / VOCs SVOCs / CHCs	4 x 43mL Glass	HCl / 4°C [1]	14 days
TPH (C10-C36) / PAH / Phenolics OCP / OPP / TDS / pH	3 x 1L Amber Glass	None / 4°C [1]	28 days

Notes: [1] = Extraction within 14 days, Analysis within 40 days.

Table QC3 - Analytical Parameters, PQLs and Methods - Soil			
Parameter	**Unit**	**PQL**	**Method Reference**
Metals in Soil			
Arsenic - As[1]	mg / kg	1	USEPA 200.7
Cadmium - Cd[1]	mg / kg	0.5	USEPA 200.7
Chromium - Cr[1]	mg / kg	1	USEPA 200.7
Copper - Cu[1]	mg / kg	1	USEPA 200.7
Lead - Pb[1]	mg / kg	1	USEPA 200.7
Mercury - Hg[2]	mg / kg	0.1	USEPA 7471A
Nickel - Ni[1]	mg / kg	1	USEPA 200.7
Zinc - Zn[1]	mg / kg	1	USEPA 200.7
Total Petroleum Hydrocarbons (TPHs) in Soil			
C_6-C_9 fraction	mg / kg	25	USEPA 8260
C_{10}-C_{14} fraction	mg / kg	50	USEPA 8000
C_{15}-C_{28} fraction	mg / kg	100	USEPA 8000
C_{29}-C_{36} fraction	mg / kg	100	USEPA 8000
BTEX in Soil			
Benzene	mg / kg	1	USEPA 8260
Toluene	mg / kg	1	USEPA 8260
Ethylbenzene	mg / kg	1	USEPA 8260
m & p Xylene	mg / kg	2	USEPA 8260
o- Xylene	mg / kg	1	USEPA 8260
Other Organic Contaminants in Soil			
PAHs	mg / kg	0.05-0.2	USEPA 8270
CHCs	mg / kg	1	USEPA 8260
VOCs	mg / kg	1	USEPA 8260
SVOCs	mg / kg	1	USEPA 8260
OCPs	mg / kg	0.1	USEPA 8140, 8080
OPPs	mg / kg	0.1	USEPA 8140, 8080
PCBs	mg / kg	0.1	USEPA 8080
Phenolics	mg / kg	5	APHA 5530
Asbestos			
Asbestos	mg / kg	Presence / Absence	AS4964-2004

Notes:

1. Acid Soluble Metals by ICP-AES
2. Total Recoverable Mercury

Table QC4 - Analytical Parameters, PQLs and Methods - Groundwater

Parameter	Unit	PQL	Method
Heavy Metals			
Antimony - Sb	µg/L	1	USEPA 200.8
Arsenic - As	µg/L	1	USEPA 200.8
Beryllium - Be	µg/L	0.5	USEPA 200.8
Cadmium - Cd	µg/L	0.1	USEPA 200.8
Chromium - Cr	µg/L	1	USEPA 200.8
Cobalt - Co	µg/L	1	USEPA 200.8
Copper - Cu	µg/L	1	USEPA 200.8
Lead - Pb	µg/L	1	USEPA 200.8
Mercury - Hg	µg/L	0.5	USEPA 7471A
Molybdenum - Mo	µg/L	1	USEPA 200.8
Nickel - Ni	µg/L	1	USEPA 200.8
Selenium - Se	µg/L	1	USEPA 200.8
Silver - Ag	µg/L	1	USEPA 200.8
Tin (inorg.) - Sn	µg/L	1	USEPA 200.8
Nickel - Ni	µg/L	1	USEPA 200.8
Zinc - Zn	µg/L	1	USEPA 200.8
Total Petroleum Hydrocarbons (TPHs)			
C_6-C_9 fraction	µg/L	10	USEPA 8220A / 8000
C_{10}-C_{14} fraction	µg/L	50	USEPA 8000
C_{15}-C_{28} fraction	µg/L	100	USEPA 8000
C_{29}-C_{36} fraction	µg/L	100	USEPA 8000
BTEX			
Benzene	µg/L	1	USEPA 8220A
Toluene	µg/L	1	USEPA 8220A
Ethylbenzene	µg/L	1	USEPA 8220A
m- & p-Xylene	µg/L	2	USEPA 8220A
o-Xylene	µg/L	1	USEPA 8220A
Polyciclic Aromatic Hydrocarbons (PAHs)			
PAHs	µg/L	0.1	USEPA 8270
Benzo(a)pyrene	µg/L	0.01	USEPA 8270
OrganoChlorine Pesticides (OCPs)			
Aldrin	µg/L	0.001	USEPA 8081
Chlordane	µg/L	0.001	USEPA 8081
DDT	µg/L	0.001	USEPA 8081
Dieldrin	µg/L	0.001	USEPA 8081
Endosulfan	µg/L	0.001	USEPA 8081
Endrin	µg/L	0.001	USEPA 8081
Heptachlor	µg/L	0.001	USEPA 8081
Lindane	µg/L	0.001	USEPA 8081
Toxaphene	µg/L	0.001	USEPA 8081

Parameter	Unit	PQL	Method
Chlorinated Hydrocarbons (CHCs)			
1,2-dichlorobenzene	µg/L	1	USEPA 8260B
1,3-dichlorobenzene	µg/L	1	USEPA 8260B
1,4-dichlorobenzene	µg/L	1	USEPA 8260B
1,2,3-trichlorobenzene	µg/L	1	USEPA 8260B
1,2,4-trichlorobenzene	µg/L	1	USEPA 8260B
Hexachlorobutadeine	µg/L	1	USEPA 8260B
1,1,2-trichloroethane	µg/L	1	USEPA 8260B
Hexachloroethane	µg/L	10	USEPA 8270D
Other CHCs	µg/L	1	USEPA 8260B
Volatile Organic Compounds (VOCs)			
Aniline	µg/L	10	USEPA 8260B
2,4-dichloroaniline	µg/L	10	USEPA 8260B
3,4-dichloroaniline	µg/L	10	USEPA 8260B
Nitrobenzene	µg/L	50	USEPA 8260B
2,4-dinitrotoluene	µg/L	50	USEPA 8260B
2,4,6-trinitrotoluene	µg/L	50	USEPA 8260B
Phenolic Compounds			
Phenol	µg/L	10	USEPA 8041
2-chlorophenol	µg/L	10	USEPA 8041
4-chlorophenol	µg/L	10	USEPA 8041
2, 4-dichlorophenol	µg/L	10	USEPA 8041
2,4,6-trichlorophenol	µg/L	10	USEPA 8041
2,3,4,6-tetrachlorophenol	µg/L	10	USEPA 8041
Pentachlorophenol	µg/L	10	USEPA 8041
2,4-dinitrophenol	µg/L	10	USEPA 8041
Miscellaneous Parameters			
Total Cyanide	µg/L	5	APHA 4500C&E-CN
Fluoride	µg/L	10	APHA 4500 F-C
Salinity (TDS)	mg/L	1	APHA 2510
pH	units	0.1	APHA 4500H+
OrganoPhosphate Pesticides (OPPs)			
Azinphos Methyl	µg/L	0.01	USEPA 8141
Chloropyrifos	µg/L	0.01	USEPA 8141
Diazinon	µg/L	0.01	USEPA 8141
Dimethoate	µg/L	0.01	USEPA 8141
Fenitrothion	µg/L	0.01	USEPA 8141
Malathion	µg/L	0.01	USEPA 8141
Parathion	µg/L	0.01	USEPA 8141
Temephos	µg/L	0.01	USEPA 8141
Polychlorinated Biphenyls (PCBs)			
Individual PCBs	µg/L	0.01	USEPA 8081

Table QC5 - QC Sample Data Acceptance Criteria

QC Sample Type	Method of Assessment	Acceptable Range
Field QC		
Blind Duplicates and Split Samples	The assessment of split duplicate is undertaken by calculating the Relative Percent Difference (RPD) of the duplicate concentration compared with the primary sample concentration. The RPD is defined as: $RPD = 100 \times \frac{\lvert X_1 - X_2 \rvert}{\text{mean}(X1, X2)}$ Where: X_1 and X_2 are the concentrations of the primary and duplicate samples.	The acceptable range depends upon the levels detected: - 0-150% RPD (when the average concentration is <5 times the LOR/PQL) - 0-75% RPD (when the average concentration is 5 to 10 times the LOR/PQL) - 0-50% RPD (when the average concentration is >10 times the LOR/PQL)
Rinsate & Trip Blanks	Each blank is analysed as per the original samples.	Analytical Result <LOR/PQL
Laboratory prepared Trip Spike	The Trip Spike is analysed after returning from the field and the % recovery of the known spike is calculated.	70 - 130%
Laboratory QC		
Laboratory Duplicates	Assessment of Lab Duplicate RPD as per Blind Duplicates and Split Samples.	Lab Duplicate RPD < 15% (Inorganics) Lab Duplicate RPD < 30% (Organics) for sample results > 10 LOR
Surrogates Matrix Spikes Laboratory Control Samples	Assessment is undertaken by determining the percent recovery of the known surrogate spike (SS) or addition to the sample. $\%\ Recovery = 100 \times \frac{C - A}{B}$ Where: A = Concentration of analyte determined in the original sample; B = Added Concentration; and C = Calculated Concentration.	at least 2 SS recoveries to be within 70-130% subject to matrix effects (Organics) 80-120% (Inorganics / Metals) 60-140% (Organics) 10-140% (SVOC and Speciated Phenols) If the result is outside the above ranges, the result must be <3x Standard Deviation of the Historical Mean (calculated over the past 12 months).
Sample Matrix Spike Duplicates	Recovery RPD	<30% (Inorganics & Organics)
Calibration Check Standars	Continuous Calibration Verification (CCV)	CCV must be within ±15% (inorganics) CCV must be within ±25% (inorganics)
Reagent, Method & Calibration Check Blanks	Each blank is analysed as per the original samples.	Analytical Result <LOR/PQL

Note: PQL - Laboratory Practical Quantitation Limit (PQL) or the minimum detection limit for a particular analyte.
LOR = Limit of Reporting

SGS Environmental Services is accredited by NATA for Chemical Testing (Reg.No.2562) and Quality System compliance to ISO/IEC 17025. The QC parameters contained within are designed to meet NEPM 1999 requirements.

Quality Control samples included in any analytical run are listed below.

Reagent/Analysis Blank (BLK) **Method Blank (MB)**	Sample free reagents carried through the preparation/extraction/digestion procedure and analysed at the beginning of every sample batch analysis. A reagent blank is prepared and analysed with every batch of samples plus with each new batch of solvent prior to use.
Sample Matrix Spike (MS) & Matrix Spike Duplicate (MSD)	Sample replicates spiked with identical concentrations of target analyte(s). The spiking occurs during the sample preparation and prior to the extraction/digestion procedure. They are used to document the precision and bias of a method in a given sample matrix. Where there is not enough sample available to prepare a spiked sample, another known soil/sand or water may be used. A duplicate spiked sample is analysed at least every 20 samples.
Surrogate Spike (SS)	At least one but up to three surrogate compounds are added to all samples requiring analysis for organics prior to extraction. Used to determine the extraction efficiency. They are organic compounds which are similar to the target analyte(s) in chemical composition and behaviour in the analytical process, but which are not normally found in environmental samples. Where possible they are surrogate compounds recommended by the USEPA.
Control Matrix Spike (CMS)	To ensure spike recoveries can be determined for every batch of samples a control matrix is spiked with identical concentrations of target analyte(s) and then analysed. These results allow recoveries to be determined in the event that the matrix spikes are unusable (eg. matrix spikes performed on heavily contaminated samples). These are analysed at least every 20 samples.
Internal Standard (IS)	Added to all samples requiring analysis for organics (where relevant) after the extraction process; the compounds serve to give a standard of retention time and response, which is invariant from run-to-run with the instruments. Where possible they are standard compounds recommended by the USEPA.
Lab Duplicates (D)	A separate portion of a sample being analysed that is treated the same as the other samples in the batch. One duplicate is processed at least every 10 samples.
Lab Control Standards/Samples (LCS)	Prepared from a source independent of the calibration standards. At least one control standard is included in each run to confirm calibration validity. Thereafter they are analysed at least every one in 20 samples plus at the end of each analytical run. This data is not reported.
Continuous Calibration Verification (CCV) or **Calibration Check Standard & Blank**	A calibration check standard or CCV and blank are run after every 20 samples of an instrumental analysis run to assess analytical drift. Calibration Standards are checked old versus new with a criteria of ±10%

Quality Assurance Programs are listed below:

Statistical analysis of Quality Control data (SQC)	Quality control data is plotted on control charts using the APHA procedure with warning and control limits at 2 and 3 standard deviations respectively. See also QMS Procedure "Statistical Quality Control".
Certified Reference Materials (CRM/SRM)	Certified Reference Materials and Standards are regularly analysed. These materials/standards have certified reference values for various parameters.
Proficiency Testing	Regular proficiency test samples are analysed by our laboratories. SGS Environmental participates in a number of programs. Results and proficiency status are compiled and sent to participating laboratory post data interpretation. Failure to comply with acceptable values result in further investigations.
Inter-laboratory & Intra-laboratory Testing	SGS Environmental Services has schedules in the Quality Systems to participate in Inter/Intra laboratory testing conducted internally and by other parties.
Data Acceptance Criteria Unless otherwise specified in the method or method manual the following general criteria apply to all inorganic tests. All recoveries are to be reported to 3 significant figures.	Failure to meet the internal acceptance criteria will result in sample batch repeats dependent upon investigation outcomes. For data to be accepted: <u>Inorganics (water samples)</u> • For all inorganic analytes the Reagent & Method Blanks must be less than the LOR. • The Calibration Check Standards or Continuous Calibration Verification (CCV) must be within ±15%. • Control Standards must be 80-120% of the accepted value. • The Calibration Check Blanks must be less than the LOR. • Lab Duplicates RPD to be <15%*. Note: If client <u>field</u> duplicates do not meet this criteria it may indicate heterogeneity and shall be noted on the data reports for QC samples. • Sample (and if applicable Control) Matrix Spike♬ Duplicate recovery RPD to be <30%. • Where CRMs are used, results to be within ± 2 standard deviations of the expected value. <u>Inorganics (soil samples)</u> • For all inorganic analytes the Reagent & Method Blanks must be less than the LOR. • The Calibration Check Standards or Continuous Calibration Verification (CCV) must be within ±15%. • Control Standards must be 80-120% of the accepted value. • The Calibration Check Blanks must be less than the LOR. • Lab duplicate RPD to be <30%* for sample results greater than 10 times LOR. • Sample Matrix Spike Duplicate (MS♬/MSD) recovery RPD to be <30%. In the event that the matrix spike has been applied to samples whose matrix or contamination is problematic to the method then these acceptance criteria apply to the Control Matrix Spike (CMS/D). • Where CRMs are used, results to be within ± 2 standard deviations of the expected value.

Data Acceptance Criteria Unless otherwise specified in the method or method manual the following general criteria apply to all organic tests. All recoveries are to be reported to 3 significant figures.	Organics • Volatile & extractable Reagent & Method Blanks must contain levels less than or equal to LOR. • The Calibration Check Standards or Continuous Calibration Verification (CCV) must be within ±25%. Some analytes may have specific criteria. • Control Standards (LCS/CMS) and Certified Reference Materials (CRM) recoveries are to be within established control limits or as a default 60-140% unless compound specific limits apply. • Retention times are to vary by no more than 0.2 min. • **At least two of three** routine level soil sample Surrogate Spike (SS) recoveries are to be within 70-130% where control charts have not been developed and within the established control limits for charted surrogates. Matrix effects may void this as acceptance criterion. Any recoveries outside these limits will have comment. • Water sample Surrogates Spike (SS) recoveries are to be within 40-130%. The presence of emulsions, surfactants and particulates may void this as an acceptance criterion. Any recoveries outside these limits will have comment. • Lab Duplicates (D) must have a RPD <30%*. • Sample Matrix Spike Duplicate (MS♬/MSD) recovery RPD to be <30%. In the event that the matrix spike has been applied to samples whose matrix or contamination is problematic to the method then these acceptance criteria apply to the Control Matrix Spike (CMS/D).

*Only if results are at least 10 times the LOR otherwise no acceptance criteria for RPD's apply. Application of more stringent criteria shall be applied for clean water sample from water boards and any other nominated client contracts. Nominal 10xLOR criteria are dropped to 5xLOR where specified.
♬Matrix do not readily equate to definitive recovery due to inherent matrix interferences and thus do not have recovery compliance values set. As a guide inorganic recoveries should be between 70-130% and for organics 60-130%

Batch Structure Summary

An analytical batch is nominally considered as 20 samples or smaller. As a standard template the following should be **used as a guide** according to the above Quality Control Types:

1	MB	16	UNK_DUP
2	STD1	17	MS
3	STD2	18	MS_DUP
4	STD3	19	UNK 11
5	LCS	20	UNK 12
6	BLK	21	UNK 13
7	UNK 1	22	UNK 14
8	UNK 2	23	UNK 15
9	UNK 3	24	UNK 16
10	UNK 4	25	UNK 17
11	UNK 5	26	UNK 18
12	UNK 6	27	UNK 19
13	UNK 7	28	UNK 20 (SS if applicable)
14	UNK 8	29	UNK_DUP
15	UNK 9	30	CCV
16	UNK 10 (SS if applicable)	31	CRM / SRM / CMS / LCS